

# FIRST 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 3**  
**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.) <sup>(1)</sup>	Depth to LNAPL (ft.) <sup>(1)</sup>	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
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
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
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
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
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
BH07	02/05/20	4772.12	16.01	5.03	ND	ND	4765.00
BH08	02/05/20	4770.79	12.65	6.00	ND	ND	4764.86

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

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 3**  
**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)
<b>COGCC Standard</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
GW01	12/10/18	<b>970</b>	3.2	560	<b>3,800</b>
BH01	08/23/19	<b>440</b>	<1.0	490	<b>1,400</b>
BH01	11/15/19	<b>840</b>	<1.0	420	<b>1,200</b>
BH01	02/05/20	<1.0	<1.0	<1.0	<2.0
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
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
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
BH05	08/23/19	<b>340</b>	<1.0	500	<b>1,700</b>
BH05	11/15/19	<b>530</b>	<1.0	490	<b>1,600</b>
BH05	02/05/20	<b>240</b>	<1.0	450	1,100
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
BH07	02/05/20	<1.0	<1.0	<1.0	<2.0
BH08	02/05/20	<1.0	<1.0	<1.0	2.5

**Notes:**

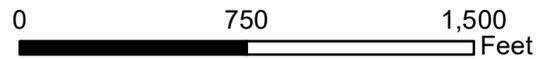
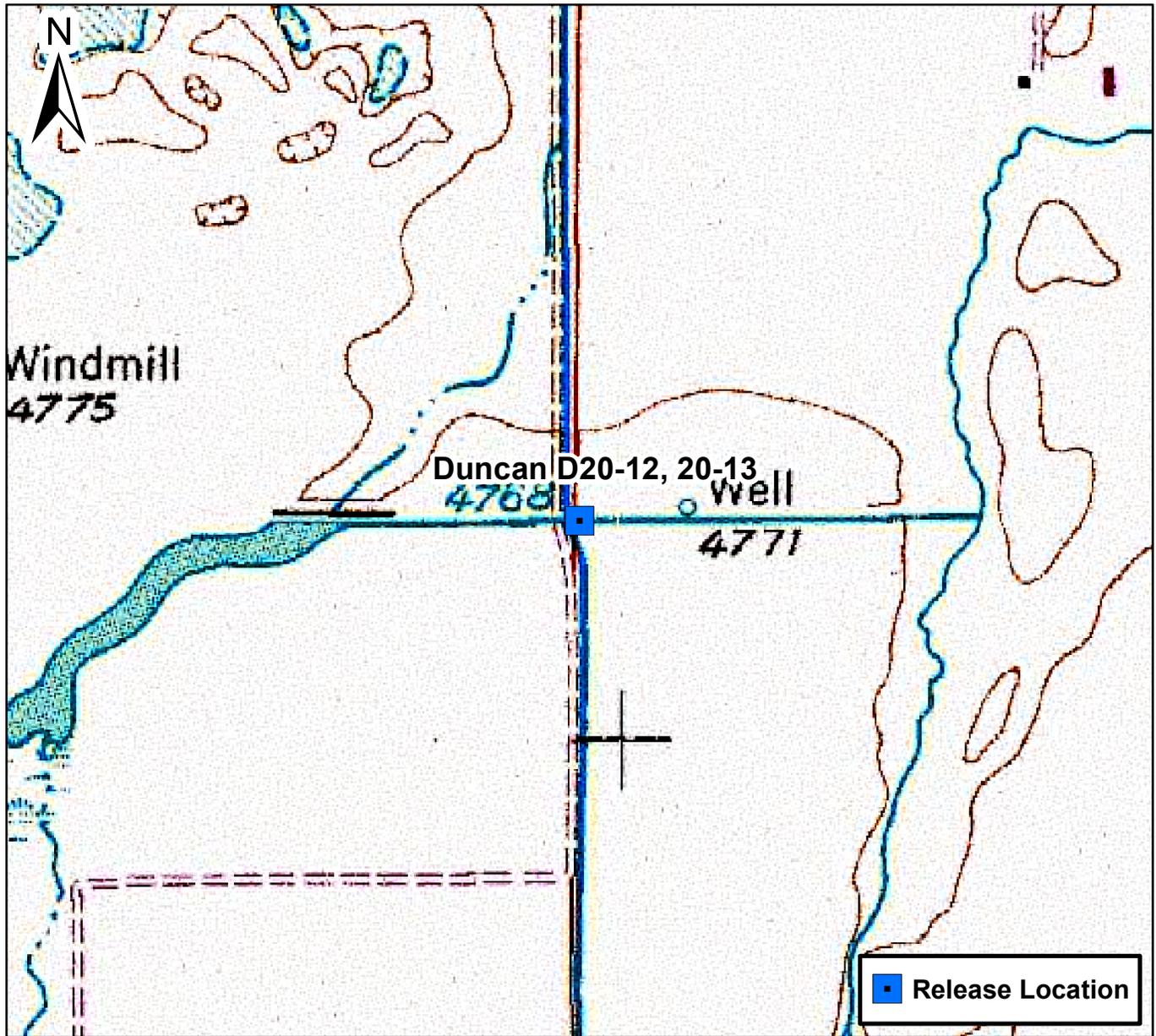
COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

Groundwater standards referenced from COGCC Table 910-1

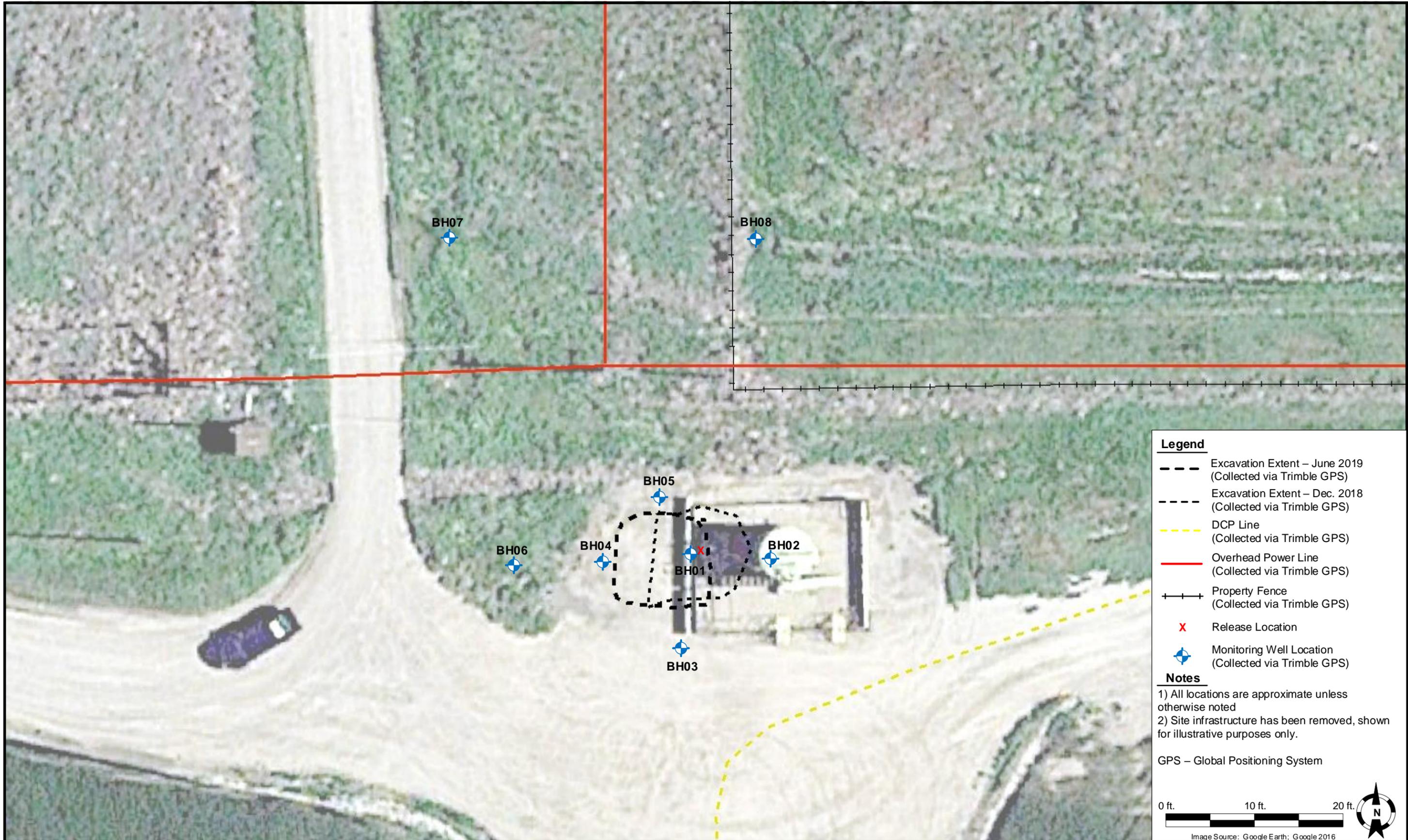
**Highlighted results are equal to or exceed the COGCC Table 910-1 standard**



### 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. 10 ft. 20 ft.

Image Source: Google Earth; Google 2016

DATE:	02/28/2020
DESIGNED BY:	JW
DRAWN BY:	KC

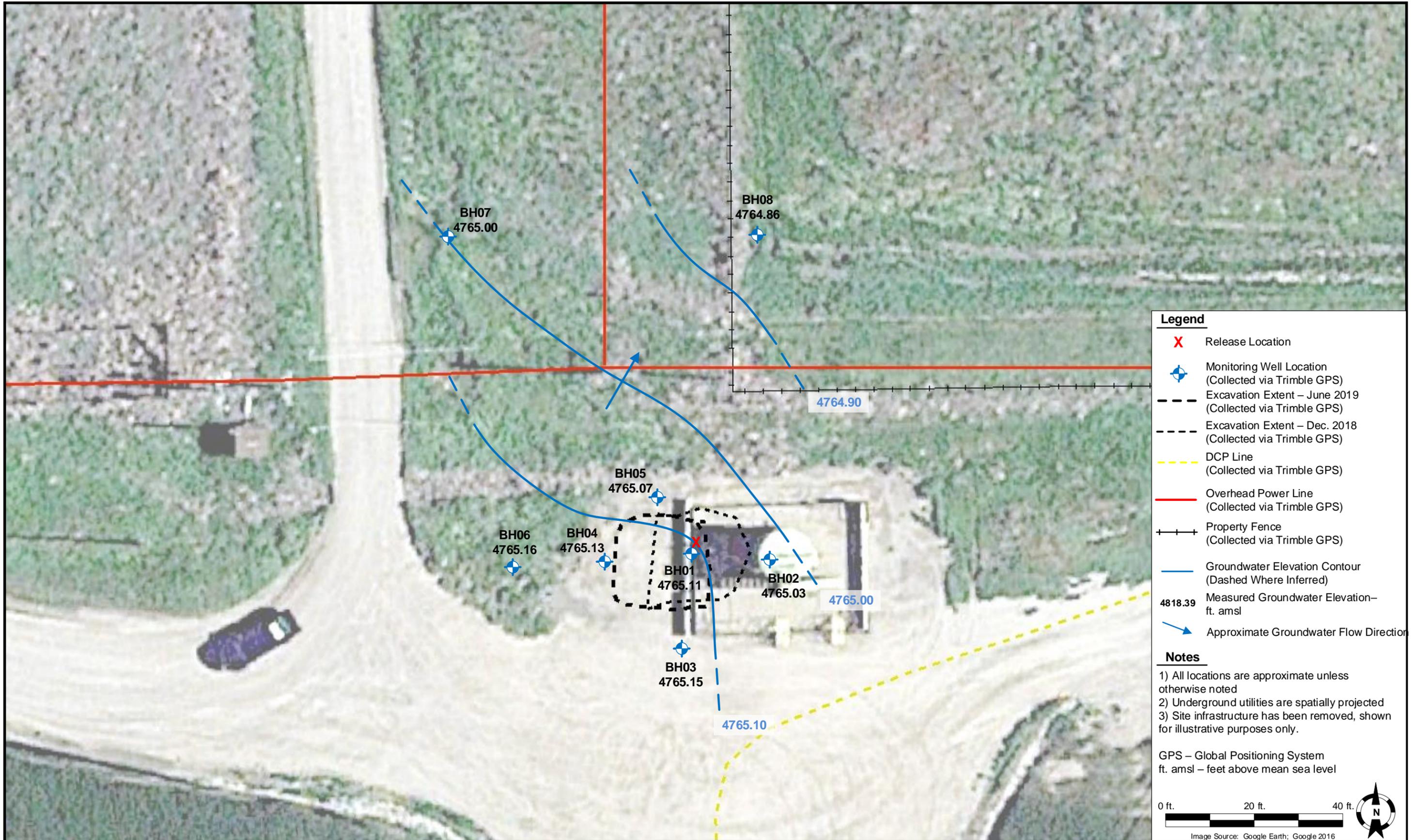
**TASMAN**  
GEOSCIENCES

Tasman Geosciences, Inc.  
6855 W. 119<sup>th</sup> 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

FIGURE  
2



- Legend**
- X Release Location
  - ◆ Monitoring Well Location (Collected via Trimble GPS)
  - - - 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)
  - Groundwater Elevation Contour (Dashed Where Inferred)
  - 4818.39 Measured Groundwater Elevation–ft. amsl
  - Approximate Groundwater Flow Direction

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

GPS – Global Positioning System  
 ft. amsl – feet above mean sea level

0 ft. 20 ft. 40 ft.

Image Source: Google Earth; Google 2016

DATE:	02/28/2020
DESIGNED BY:	JW
DRAWN BY:	KC



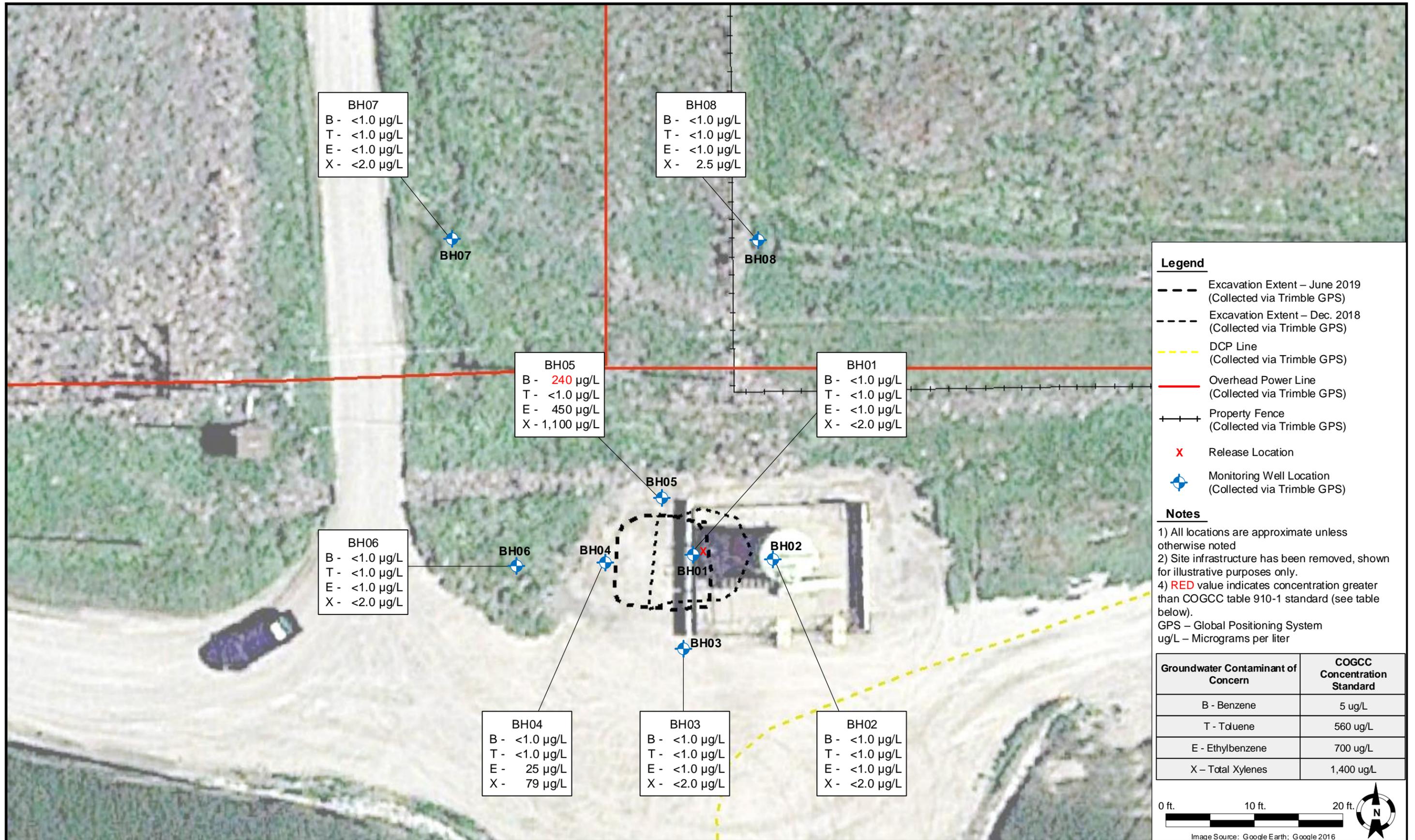
**TASMAN**  
 GEOSCIENCES

Tasman Geosciences, Inc.  
 6855 W. 119<sup>th</sup> 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  
 (02/05/2020)

FIGURE  
 3



DATE: 02/28/2020  
 DESIGNED BY: JW  
 DRAWN BY: KC

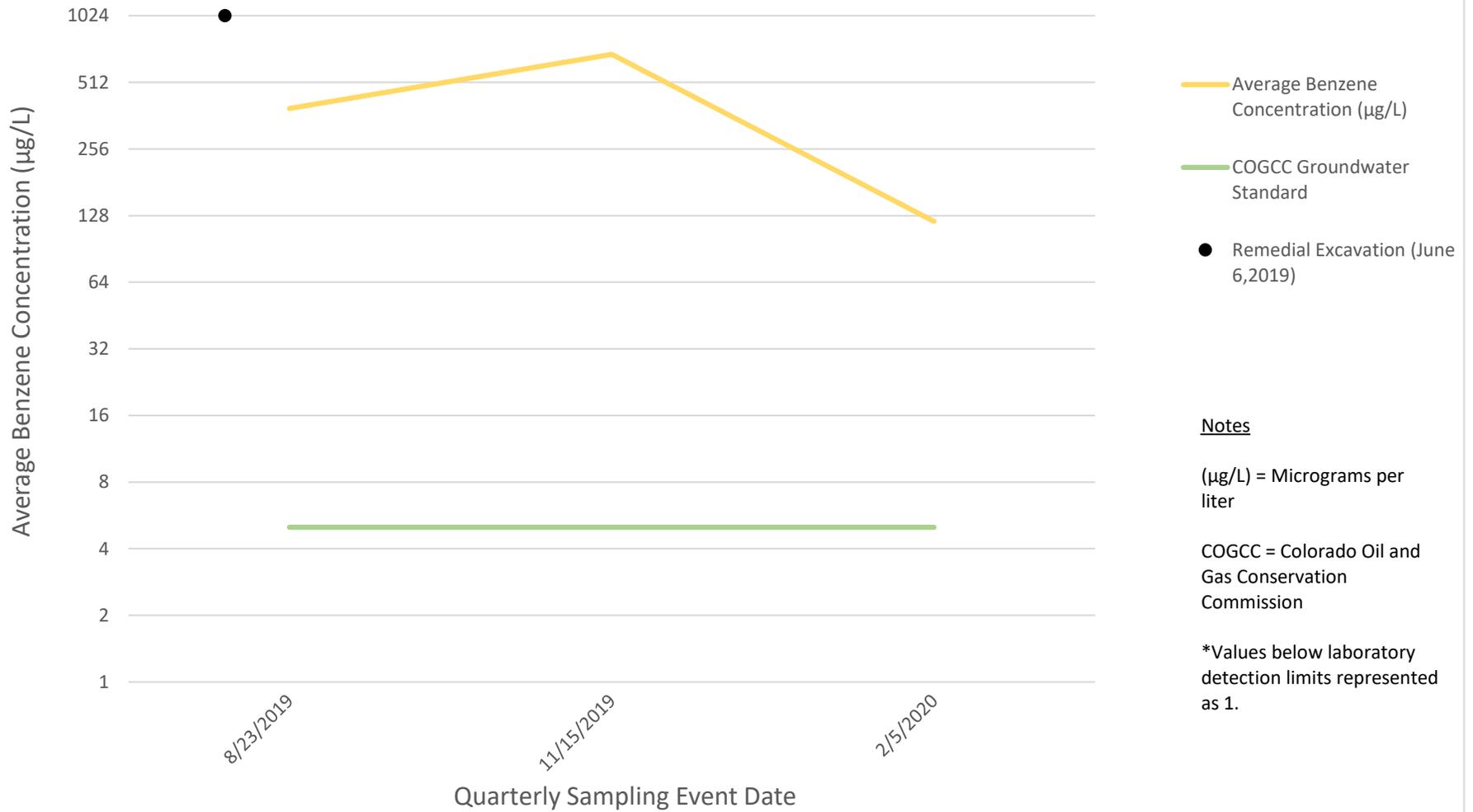
**TASMAN**  
 GEOSCIENCES  
 Tasman Geosciences, Inc.  
 6855 W. 119<sup>th</sup> Avenue  
 Broomfield, CO 80020

**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  
 (02/05/2020)

FIGURE  
 4

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



# **ATTACHMENT A**

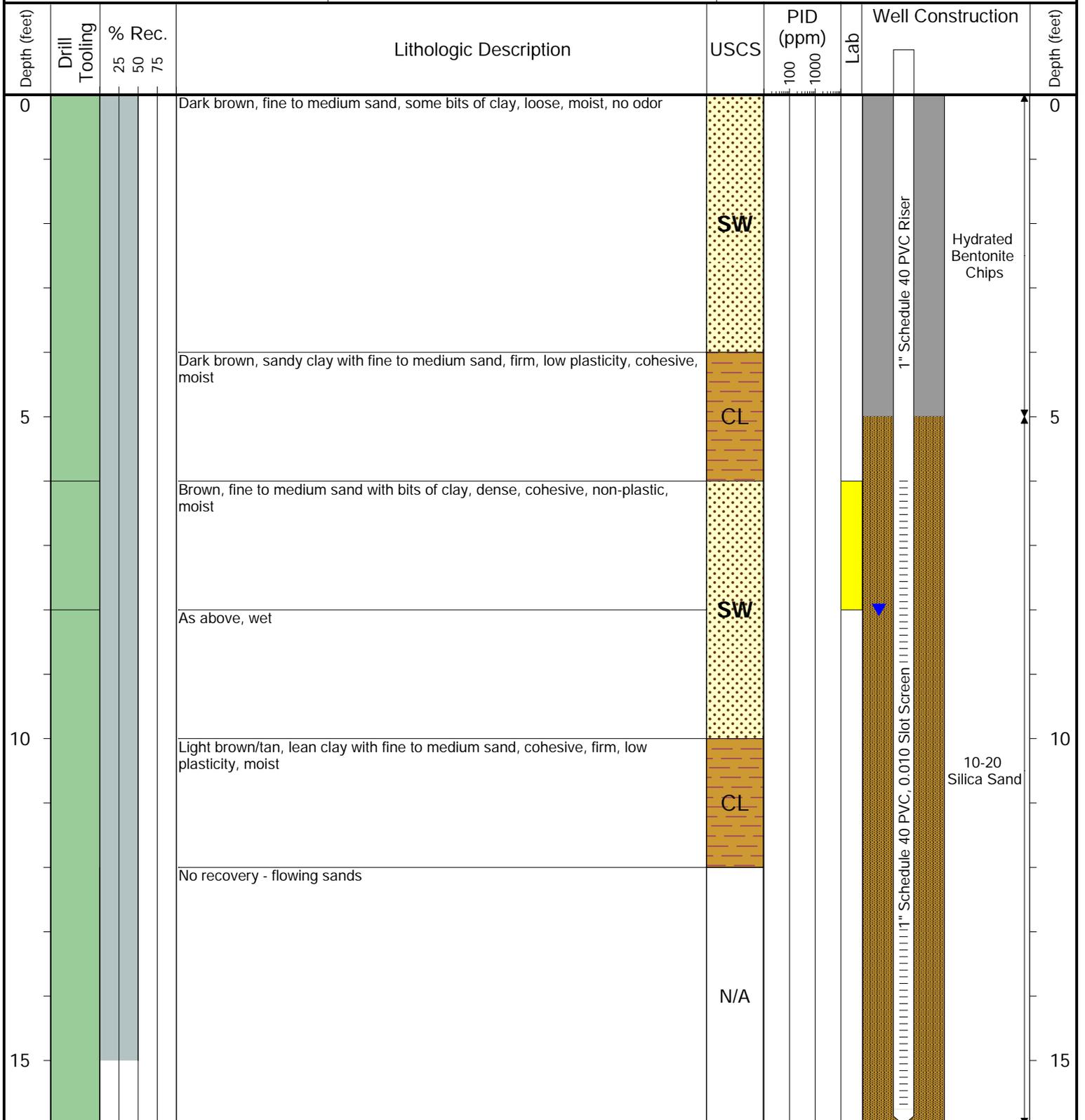
## **BORING LOGS**



6855 W. 119th Avenue  
Broomfield, Colorado 80020

CLIENT: Noble Energy  
 LOGGED BY: Tanner Cook  
 PROJECT MANAGER: Jake Whritenour  
 DRILLING CONTRACTOR: Tasman Geosciences  
 DRILLING EQUIPMENT: Geoprobe  
 DRILL BIT SIZE (INCHES): 2  
 DATE STARTED - COMPLETED: 12/12/2019  
 TOTAL WELL DEPTH (FT. BGS): 16  
 DEPTH TO WATER (FT. BGS): 8

Duncan D20-12, 20-13  
 BORING / WELL ID: BH07  
 LOCATION: Weld County, Colorado  
 LATITUDE (WGS 84): 40.210877034  
 LONGITUDE (WGS 84): -104.584615237  
 CASING ELEVATION (FT. AMSL): 4772.12  
 GROUND ELEVATION (FT. AMSL): 4770.03



**Drilling / Sample Method:**

- Macro-Core
- Solid Stem Auger
- Hollow Stem Auger
- Hand Auger

**Laboratory Sample Types:**

- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab



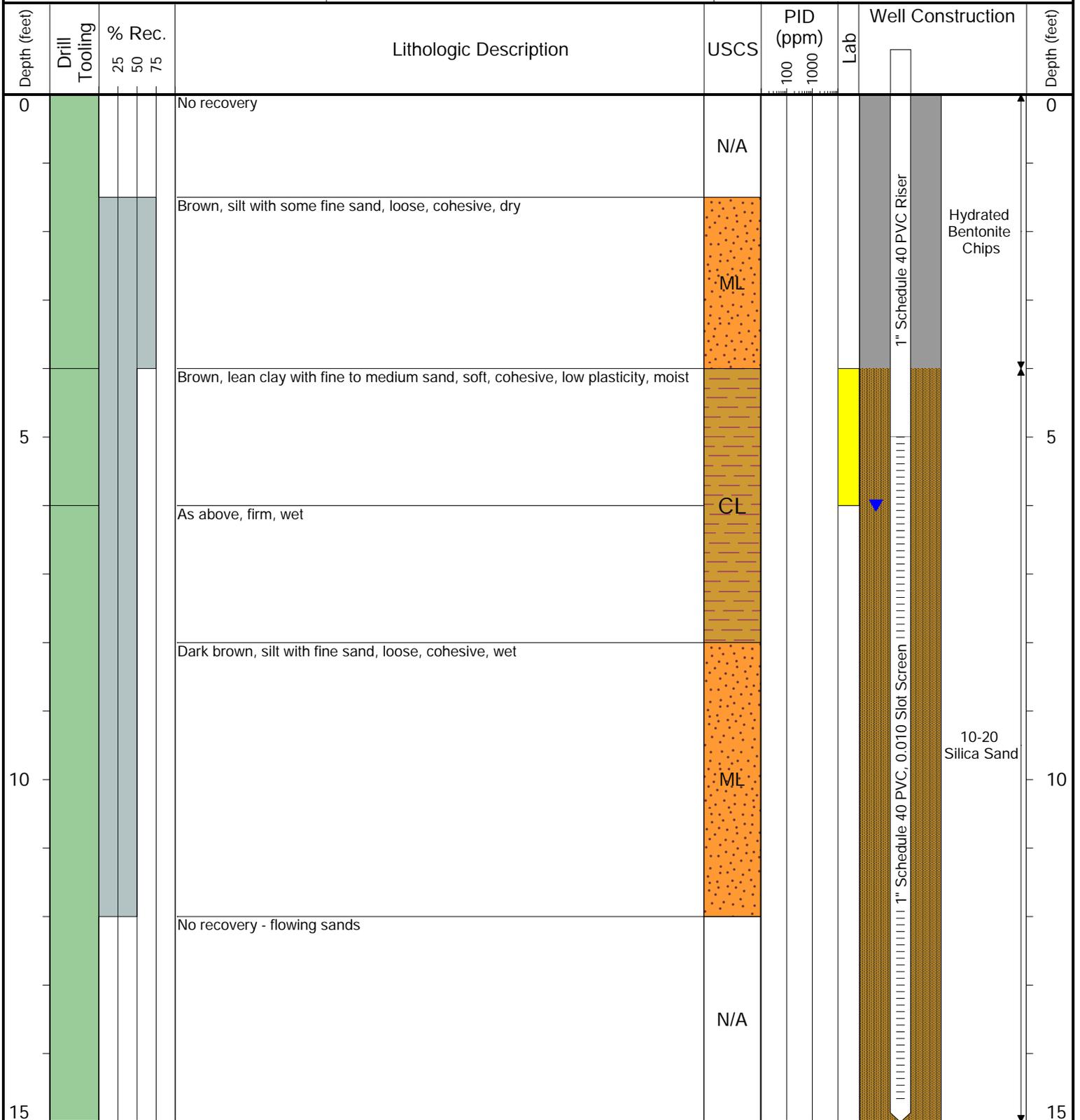
6855 W. 119th Avenue  
Broomfield, Colorado 80020

CLIENT: Noble Energy  
 LOGGED BY: Tanner Cook  
 PROJECT MANAGER: Jake Whritenour  
 DRILLING CONTRACTOR: Tasman Geosciences  
 DRILLING EQUIPMENT: Geoprobe  
 DRILL BIT SIZE (INCHES): 2  
 DATE STARTED - COMPLETED: 12/12/2019  
 TOTAL WELL DEPTH (FT. BGS): 15  
 DEPTH TO WATER (FT. BGS): 6

Duncan D20-12, 20-13

BORING / WELL ID: BH08

LOCATION: Weld County, Colorado  
 LATITUDE (WGS 84): 40.210875819  
 LONGITUDE (WGS 84): -104.584366346  
 CASING ELEVATION (FT. AMSL): 4770.79  
 GROUND ELEVATION (FT. AMSL): 4770.86



Drilling / Sample Method:

- Macro-Core
- Solid Stem Auger
- Hand Auger

Laboratory Sample Types:

- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab

# **ATTACHMENT B**

## **LABORATORY ANALYTICAL DATA REPORTS**

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

February 10, 2020

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

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

Work Order #2002032

Enclosed are the results of analyses for samples received by Summit Scientific on 02/05/20 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized initial 'M'.

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:**  
02/10/20 14:29

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2002032-01	Water	02/05/20 16:04	02/05/20 17:30
BH02	2002032-02	Water	02/05/20 15:44	02/05/20 17:30
BH03	2002032-03	Water	02/05/20 15:29	02/05/20 17:30
BH04	2002032-04	Water	02/05/20 15:30	02/05/20 17:30
BH05	2002032-05	Water	02/05/20 15:55	02/05/20 17:30
BH06	2002032-06	Water	02/05/20 15:38	02/05/20 17:30
BH07	2002032-07	Water	02/05/20 15:40	02/05/20 17:30
BH08	2002032-08	Water	02/05/20 15:52	02/05/20 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.*



**Sample Receipt Checklist**

S2 Work Order 2002032

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

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

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

Temp (°C)	3.4
-----------	-----

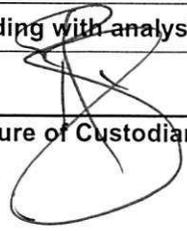
Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? 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 <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?			✓	
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 <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>		✓		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? 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 <sup>(1)</sup> ? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	

Additional Comments (if any):  
 \_\_\_\_\_  
 \_\_\_\_\_

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

RZ  
 \_\_\_\_\_  
 Custodian Printed Name or Initials

  
 \_\_\_\_\_  
 Signature of Custodian

2/5/20  
 \_\_\_\_\_  
 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:**  
02/10/20 14:29

**BH01**  
**2002032-01 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 16:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/05/20 16:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		91.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		70.8 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.0 %		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 - Duncan D20-12, 20-13

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
02/10/20 14:29

**BH02**  
**2002032-02 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 15:44**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/05/20 15:44**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		118 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		88.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.3 %		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:**  
02/10/20 14:29

**BH03**  
**2002032-03 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 15:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/05/20 15:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		53.0 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		89.2 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		79.7 %		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:**  
02/10/20 14:29

**BH04**  
**2002032-04 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 15:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>25</b>	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>79</b>	2.0		"	"	"	"	"	"	

Date Sampled: **02/05/20 15:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		52.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		73.7 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		81.8 %		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:**  
02/10/20 14:29

**BH05**  
**2002032-05 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>240</b>	10		ug/l	10	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>450</b>	10		"	10	"	"	"	"	
<b>Xylenes (total)</b>	<b>1100</b>	20		"	"	"	"	"	"	

Date Sampled: **02/05/20 15:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		97.6 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		68.7 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		80.3 %		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:**  
02/10/20 14:29

**BH06**  
**2002032-06 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 15:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/05/20 15:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		52.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		82.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.4 %		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:**  
02/10/20 14:29

**BH07**  
**2002032-07 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 15:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/05/20 15:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		54.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		81.2 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		81.6 %		21-167		"	"	"	"	

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Project Manager: Brandon Bruns

**Reported:**  
02/10/20 14:29

**BH08**  
**2002032-08 (Water)**

**Summit Scientific**

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

Date Sampled: **02/05/20 15:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2002072	02/06/20	02/07/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2.5</b>	<b>2.0</b>		"	"	"	"	"	"	

Date Sampled: **02/05/20 15:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		45.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		83.6 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		81.8 %		21-167		"	"	"	"	

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

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
02/10/20 14:29

### 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 2002072 - EPA 5030 Water MS

##### Blank (2002072-BLK1)

Prepared: 02/06/20 Analyzed: 02/07/20

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	2.0	"								
Surrogate: 1,2-Dichloroethane-d4	8.51		"	13.3		63.8		23-173			
Surrogate: Toluene-d8	10.8		"	13.3		81.4		20-170			
Surrogate: 4-Bromofluorobenzene	10.9		"	13.3		81.7		21-167			

##### LCS (2002072-BS1)

Prepared: 02/06/20 Analyzed: 02/07/20

Benzene	26.3	1.0	ug/l	33.3		79.0		51-132			
Toluene	23.4	1.0	"	33.3		70.1		51-138			
Ethylbenzene	27.6	1.0	"	33.3		82.7		58-146			
m,p-Xylene	50.1	2.0	"	66.7		75.2		57-144			
o-Xylene	24.9	1.0	"	33.3		74.8		53-146			
Surrogate: 1,2-Dichloroethane-d4	6.66		"	13.3		50.0		23-173			
Surrogate: Toluene-d8	11.8		"	13.3		88.2		20-170			
Surrogate: 4-Bromofluorobenzene	9.79		"	13.3		73.4		21-167			

##### Matrix Spike (2002072-MS1)

Source: 2002032-01

Prepared: 02/06/20 Analyzed: 02/07/20

Benzene	25.9	1.0	ug/l	33.3	ND	77.7		34-141			
Toluene	25.1	1.0	"	33.3	ND	75.4		27-151			
Ethylbenzene	30.5	1.0	"	33.3	ND	91.4		29-160			
m,p-Xylene	55.0	2.0	"	66.7	ND	82.6		20-166			
o-Xylene	26.7	1.0	"	33.3	ND	80.2		33-159			
Surrogate: 1,2-Dichloroethane-d4	6.30		"	13.3		47.3		23-173			
Surrogate: Toluene-d8	11.9		"	13.3		89.1		20-170			
Surrogate: 4-Bromofluorobenzene	9.99		"	13.3		74.9		21-167			

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

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
02/10/20 14:29

**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 2002072 - EPA 5030 Water MS**

**Matrix Spike Dup (2002072-MSD1)**

Source: 2002032-01

Prepared: 02/06/20 Analyzed: 02/07/20

Benzene	26.0	1.0	ug/l	33.3	ND	77.9	34-141	0.193	30	
Toluene	21.8	1.0	"	33.3	ND	65.4	27-151	14.1	30	
Ethylbenzene	26.5	1.0	"	33.3	ND	79.4	29-160	14.0	30	
m,p-Xylene	47.5	2.0	"	66.7	ND	71.2	20-166	14.7	30	
o-Xylene	23.8	1.0	"	33.3	ND	71.5	33-159	11.4	30	
Surrogate: 1,2-Dichloroethane-d4	8.71		"	13.3		65.3	23-173			
Surrogate: Toluene-d8	10.9		"	13.3		82.1	20-170			
Surrogate: 4-Bromofluorobenzene	10.2		"	13.3		76.5	21-167			

Summit Scientific

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

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
02/10/20 14:29

### 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