

SITE ASSESSMENT REPORT

BEEBE DRAW RG 26-9, 23

COGCC SPILL TRACKING # 455231
COGCC REMEDIATION # 11925

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6899 North Pecos Street, Unit C
Denver, CO 80221

November 7, 2018

Mr. Jacob Evans
Environmental Coordinator, EHSR
Noble Energy Inc.
2115 117th Avenue
Greeley, CO 80631

Subject: **Site Assessment Report**
 Beebe Draw RG 26-9, 23
 Spill/Release Point ID: 455231
 Remediation #: 11925
 NESE S26 T4N R65W
 Weld County, Colorado

Dear Mr. Evans:

Below please find a copy of the above referenced Site Assessment Report (Report) for the Beebe Draw RG 26-9, 23 site (Site) located in Weld County, Colorado. The text below describes assessment and associated groundwater and soil sampling activities conducted by Tasman Geosciences, Inc. (Tasman), on behalf of Noble Energy, Inc. (Noble) between October 18 and November 6, 2018.

Introduction

The purpose of this document is to describe the results of soil and groundwater sampling activities conducted at the Site to evaluate potential subsurface impacts. The activities described below were performed in response to the discovery of impacted material beneath the produced water vessel during plugging and abandonment activities on May 26, 2018.

Facility Background

The Site is located approximately 8 miles SE of Evans in Weld County, Colorado. Site legal description is the northeast 1/4 of the southeast 1/4 of Section 26, Township 4 north, Range 65 west, of the 6th Principal Meridian. The Site is located on terrain that slopes gradually to the northwest. The Site is approximately 15 feet (ft) west of County Road 47 and approximately 1,980 feet (ft.) North of County Road 40 and has coordinates of 40.28143°, -104.62141°.

Tasman was retained by Noble on May 26, 2018 to investigate a suspected release during plug and abandonment activities. On May 27, 2018 historic impacts were confirmed beneath the Beebe Draw RG 26-9, 23 tank battery. A Form 19 was submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on May 27, 2018. The COGCC subsequently issued Spill/Release Point ID Number 455231 for this event. The COGCC assigned Remediation Number 11925 for the project. Activities and results of the initial investigation were reported in the document *Beebe Draw RG 26-9, 23 Excavation Report* (August 21, 2018).

Field Activities

From October 18 to November 6, 2018, Tasman completed a site assessment to delineate subsurface impacts. Tasman advanced 14 boreholes (BH01 through BH14) within the excavation extent and in all cardinal directions outside of the excavation extent. All 14 soil borings were converted to temporary groundwater monitoring wells. Borehole locations are illustrated on Figure 3 and the borings logs are provided at Attachment A. During boring operations, soil samples were collected and field screened for volatile organic compounds (VOC) using a photoionization detector (PID) and standard headspace sampling techniques. Soil samples were collected from borings BH01 through BH14 from the interval of the highest PID reading above where the groundwater table was observed. All fourteen soil samples were submitted to Summit Scientific (Summit) in Golden, Colorado for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX) and naphthalene, total petroleum hydrocarbons – gasoline range organics (TPH-GRO) using United States Environmental Protection Agency (USEPA) Method 8260B, and total petroleum hydrocarbons diesel-range organics (TPH-DRO) using USEPA Method 8015. Soil analytical results are summarized in Table 1 and illustrated on Figure 3. The complete laboratory analytical report is included in Attachment B.

On October 22, 2018 and November 6, 2018 Tasman collected groundwater samples from wells BH01 through BH14 to evaluate dissolved phase petroleum hydrocarbon concentrations. Groundwater samples were submitted to Summit for laboratory analysis of BTEX by USEPA Method 8260B. Groundwater analytical results are summarized in Table 2 and illustrated on Figure 5. The complete laboratory analytical report is included in Attachment B. Groundwater elevation data is summarized in Table 3 and is illustrated on Figure 4.

Results

Laboratory analytical results for the 14 soil samples collected at the Site indicate petroleum hydrocarbon soil impacts are not present above applicable COGCC Table 910-1 soil standards. Laboratory analytical results for the groundwater samples collected from wells BH01 through BH14 indicate that benzene concentrations are present above applicable COGCC Table 910-1 groundwater standard in wells BH01, BH04, BH10 and BH11. Total xylenes concentrations are also present above applicable COGCC Table 910-1 groundwater standard in BH01.

Conclusions

Based upon field and laboratory data, vadose zone soil impacts were not detected at the Site above COGCC Table 910-1 soil standards. However, dissolved phase petroleum hydrocarbon impacts above applicable COGCC standards were detected. Based on the presence of benzene in well BH10 above the COGCC Table 910-1 standard, at least one additional groundwater monitoring well will be installed upgradient to achieve point of compliance. Quarterly groundwater monitoring will be conducted at the Site and A No Further Action Request (NFA) will be submitted to the COGCC once four consecutive quarters of Table 910-1 compliant groundwater data is achieved.

Remarks

The discussion and conclusions contained in this report represent the professional opinions of Tasman Geosciences, Inc. These opinions are based on currently available information and are arrived at in accordance with currently accepted geologic and engineering practices.

Please contact me at (720) 431-1190 or at bbruns@tasman-geo.com if you require additional information.

Sincerely,
Tasman Geosciences, Inc.



Brandon Bruns, PE
Project Manager

Attachments:

Table 1 – Soil Analytical Data
Table 2 – Groundwater Analytical Data
Table 3 – Groundwater Elevation Data

Figure 1 – Site Location Map
Figure 2 – Site Overview
Figure 3 – Borehole Soil Analytical Results Map (10/18/18, 10/19/18, 11/5/18)
Figure 4 – Groundwater Potentiometric Surface Contour Map (11/06/18)
Figure 5 – Groundwater Analytical Results Map (10/22/18, 11/06/18)

Attachment A – Boring Logs
Attachment B – Laboratory Analytical Data Reports

TABLES

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - BEEBE DRAW RG 26 - 9, 23

Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Naphthalene (mg/kg)
COGCC Standard		0.17	85	100	175	500		23
BH01@14-15'	10/18/18	<0.0020	<0.0050	0.0066	0.039	<50	<50	<0.010
BH02@19-20'	10/18/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH03@14-15'	10/18/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH04@12-13'	10/18/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH05@9-10'	10/19/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH06@15-16'	10/19/18	<0.0020	<0.0050	0.027	0.070	<50	<50	<0.010
BH07@14-15'	10/19/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH08@4-5'	10/19/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH09@4-5'	10/19/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH10@15'	11/05/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH11@17.5'	11/05/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH12@12.5'	11/05/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH13@10'	11/05/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH14@15'	11/05/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010

Notes:

mg/kg = Milligrams per kilogram

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

Soil standards referenced from COGCC Table 910-1

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

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BEEBE DRAW RG 26-9,23

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
BH01	10/22/18	210	1.5	240	3,300
BH02	10/22/18	<1.0	<1.0	1.1	7.9
BH03	10/22/18	<1.0	<1.0	<1.0	<2.0
BH04	10/22/18	48	<1.0	150	590
BH05	10/22/18	<1.0	<1.0	<1.0	2.9
BH06	10/22/18	<1.0	<1.0	6.1	19.0
BH07	10/22/18	<1.0	<1.0	<1.0	<2.0
BH08	10/22/18	<1.0	<1.0	<1.0	<2.0
BH09	10/22/18	<1.0	<1.0	16	130
BH10	11/06/18	8.6	<1.0	120	990
BH11	11/06/18	9.4	<1.0	23	110
BH12	11/06/18	4.2	<1.0	51	250
BH13	11/06/18	<1.0	<1.0	<1.0	<2.0
BH14	11/06/18	<1.0	<1.0	42	220

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

TABLE 3
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - BEEBE DRAW RG 26-9, 23

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	10/22/18	4774.24	27.73	12.18	ND	ND	4762.06
BH01	11/06/18	4774.24	NM	12.33	ND	ND	4761.91
BH02	10/22/18	4772.28	32.76	11.93	ND	ND	4760.35
BH02	11/06/18	4772.28	NM	11.83	ND	ND	4760.45
BH03	10/22/18	4770.72	31.80	12.07	ND	ND	4758.65
BH03	11/06/18	4770.72	NM	11.76	ND	ND	4758.96
BH04	10/22/18	4773.76	29.52	14.08	ND	ND	4759.68
BH04	11/06/18	4773.76	NM	14.11	ND	ND	4759.65
BH05	10/22/18	4770.06	27.97	11.90	ND	ND	4758.16
BH05	11/06/18	4770.06	NM	11.55	ND	ND	4758.51
BH06	10/22/18	4772.62	33.64	14.53	ND	ND	4758.09
BH06	11/06/18	4772.62	NM	14.42	ND	ND	4758.20
BH07	10/22/18	4768.79	27.87	10.70	ND	ND	4758.09
BH07	11/06/18	4768.79	NM	10.60	ND	ND	4758.19
BH08	10/22/18	4769.60	21.88	9.72	ND	ND	4759.88
BH08	11/06/18	4769.60	NM	9.68	ND	ND	4759.92
BH09	10/22/18	4771.81	23.16	10.05	ND	ND	4761.76
BH09	11/06/18	4771.81	NM	9.95	ND	ND	4761.86
BH10	11/06/18	4775.10	27.30	12.42	ND	ND	4762.68
BH11	11/06/18	4775.53	27.21	14.04	ND	ND	4761.49
BH12	11/06/18	4775.39	27.50	13.06	ND	ND	4762.33
BH13	11/06/18	4775.22	25.60	14.72	ND	ND	4760.50
BH14	11/06/18	4774.89	26.00	15.80	ND	ND	4759.09

Notes:

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

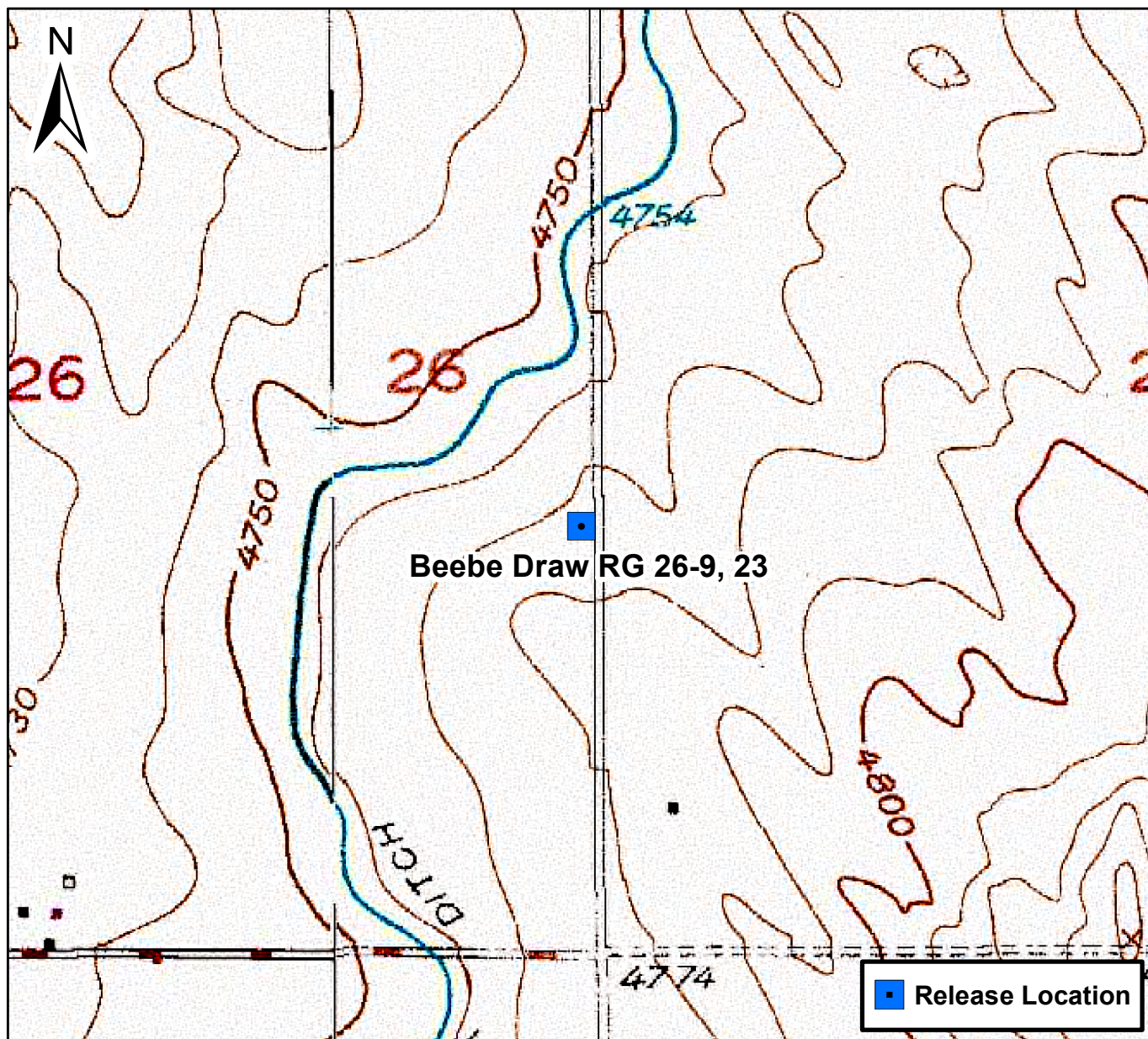
NM = Not Measured

* 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

FIGURES




0 750 1,500 Feet

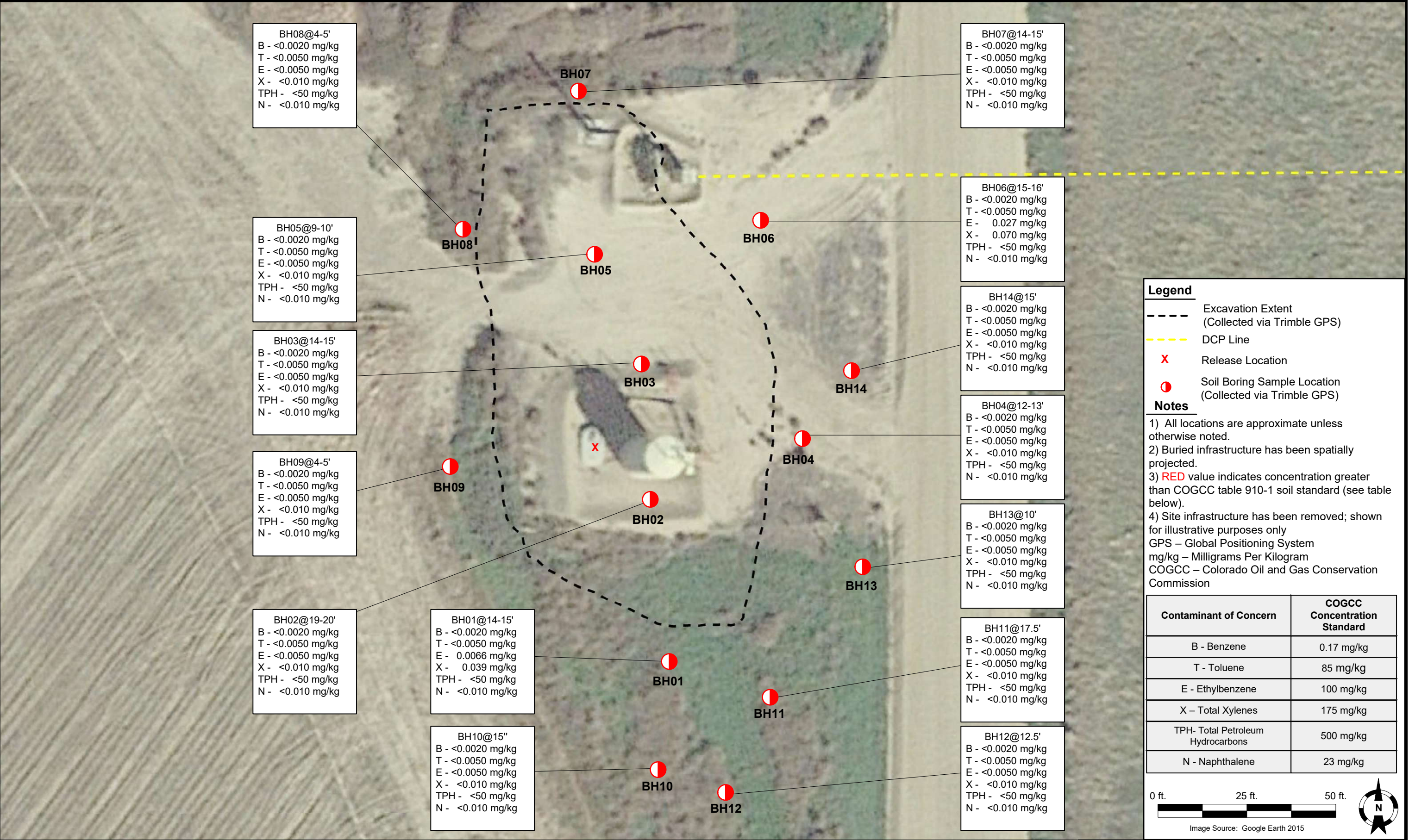
Figure 1

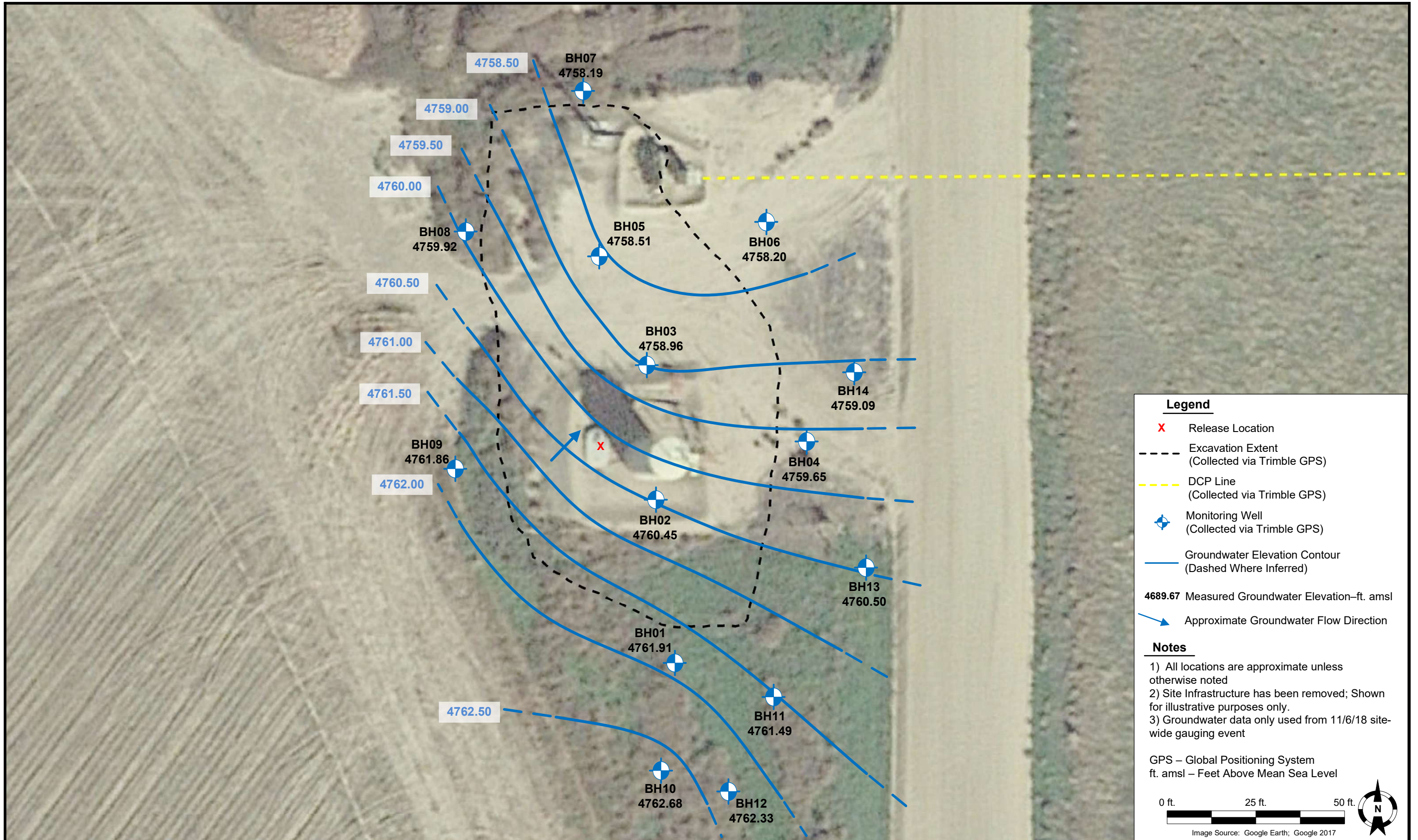
Site Location Map
Beebe Draw RG 26-9, 23
NESE Sec. 26-T4N-R65W
Weld County, Colorado

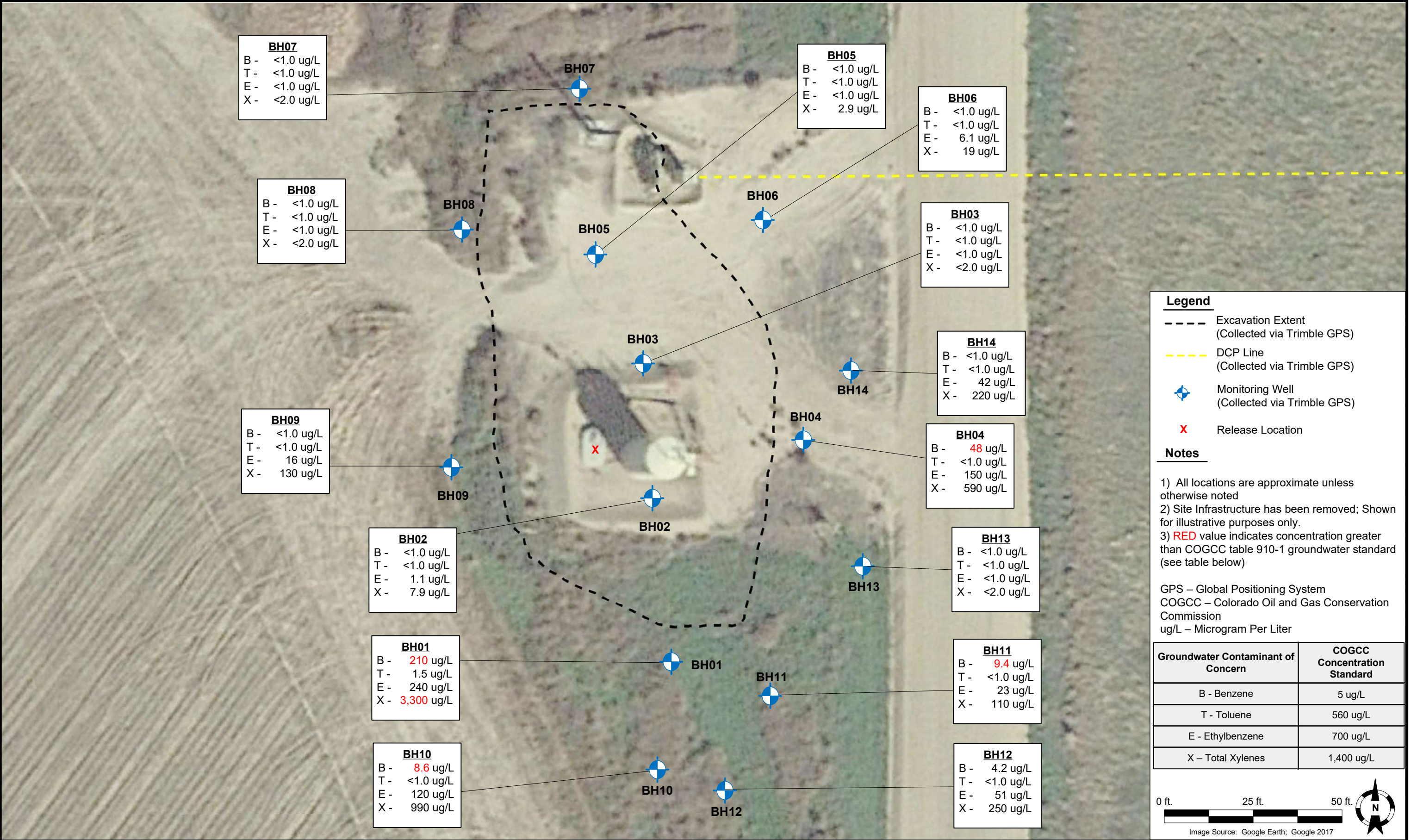




DATE:	11/6/2018	 <div>Tasman Geosciences, Inc. 6899 Pecos Street – Unit C Denver, CO 80221</div>	Noble Energy, Inc. – DJ Basin Beebe Draw RG 26-9, 23 NESE, Section 26, Township 4 North, Range 65 West Weld County, Colorado	Site Overview	Figure 2
DESIGNED BY:	JW				
DRAWN BY:	MG				







ATTACHMENT A

Boring Logs



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 16

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH01

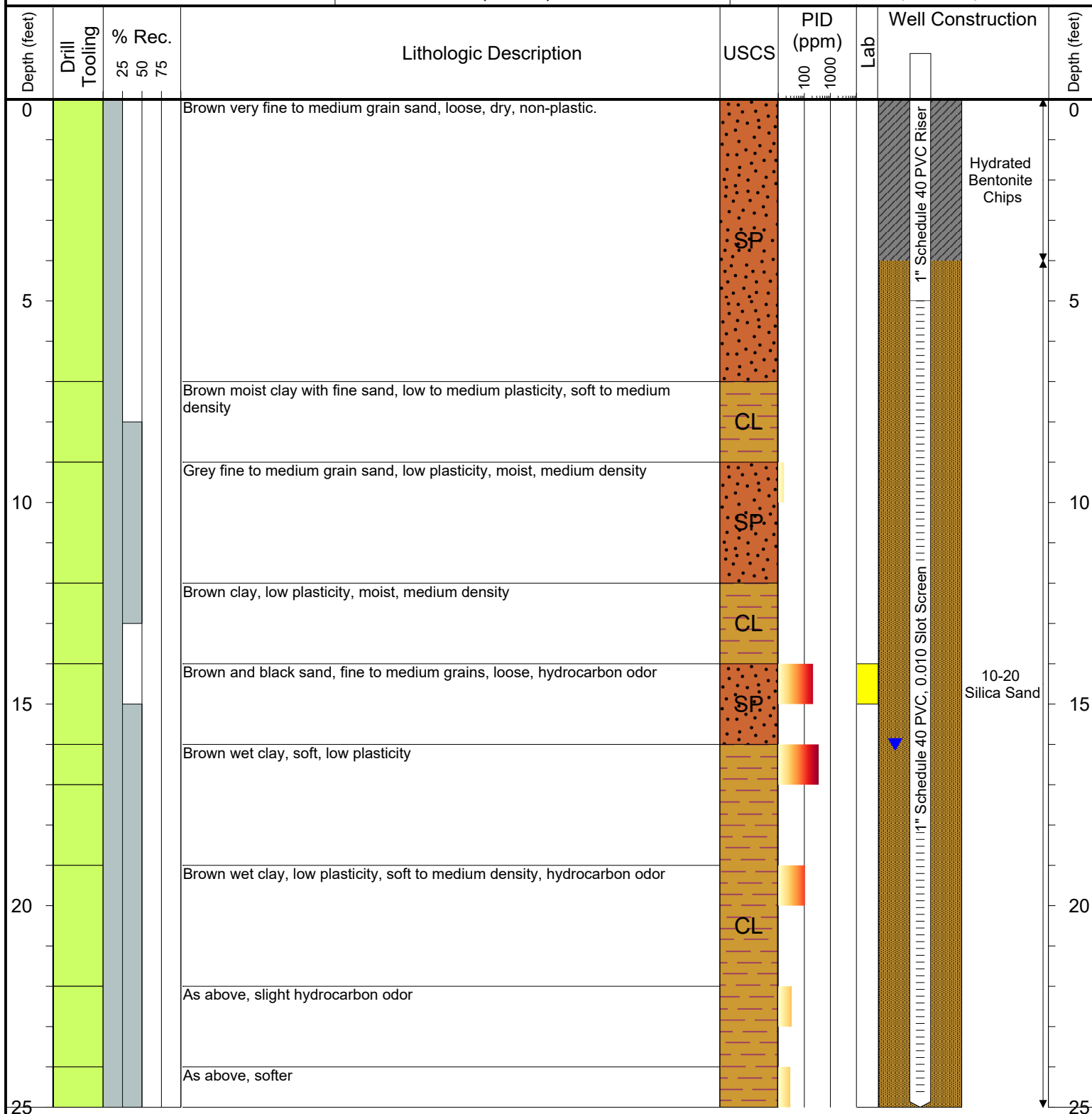
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281145352347

LONGITUDE (WGS 84): -104.62140831697

CASING ELEVATION (FT. AMSL): 4774.24

GROUND ELEVATION (FT. AMSL): 4771.37



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 30

DEPTH TO WATER (FT. BGS): 22

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH02

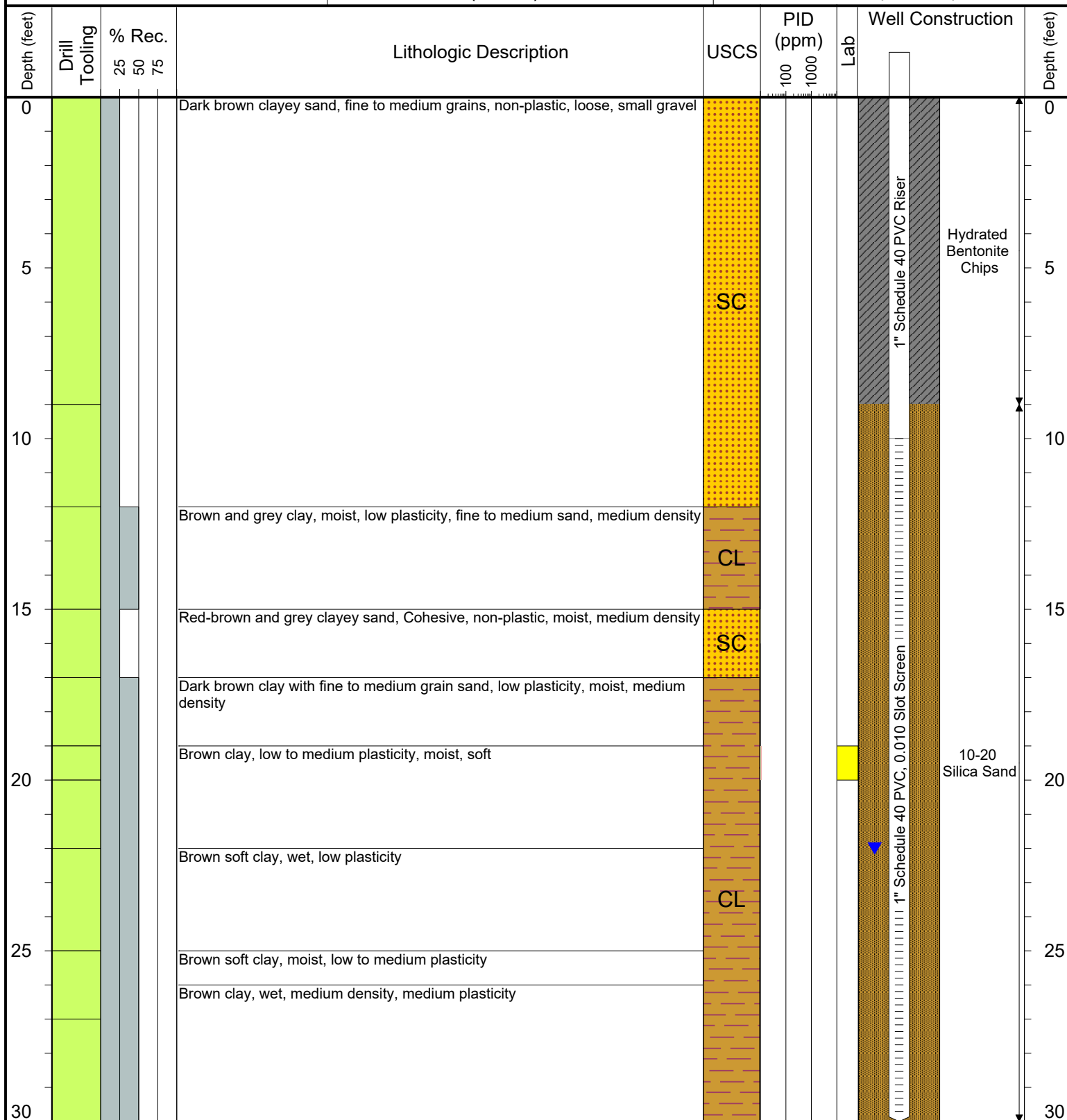
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281270829127

LONGITUDE (WGS 84): -104.62142621604

CASING ELEVATION (FT. AMSL): 4772.28

GROUND ELEVATION (FT. AMSL): 4769.6



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 30

DEPTH TO WATER (FT. BGS): 25

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH03

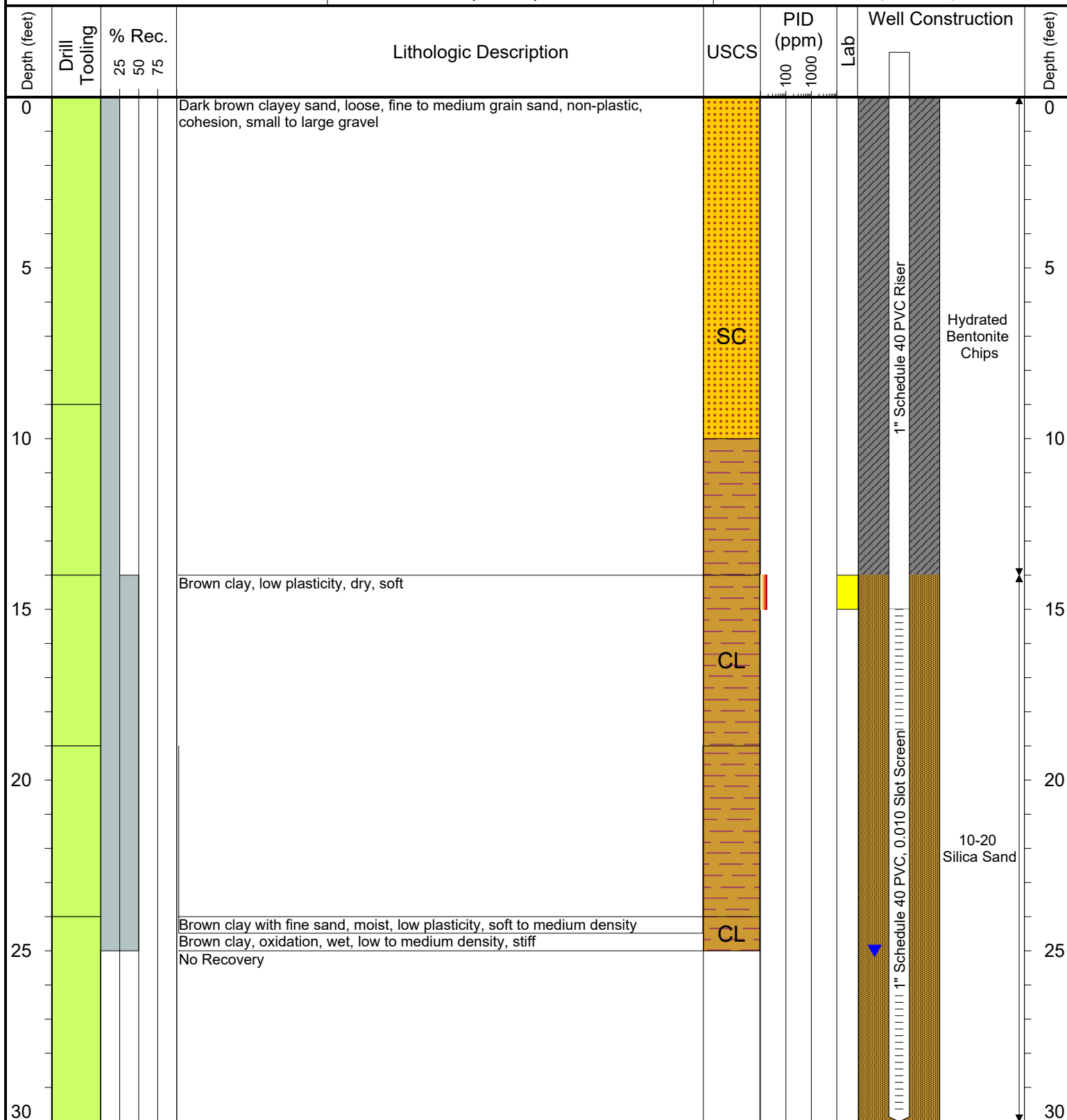
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281375290303

LONGITUDE (WGS 84): -104.62143423471

CASING ELEVATION (FT. AMSL): 4770.72

GROUND ELEVATION (FT. AMSL): 4767.74



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 28

DEPTH TO WATER (FT. BGS): 20

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH04

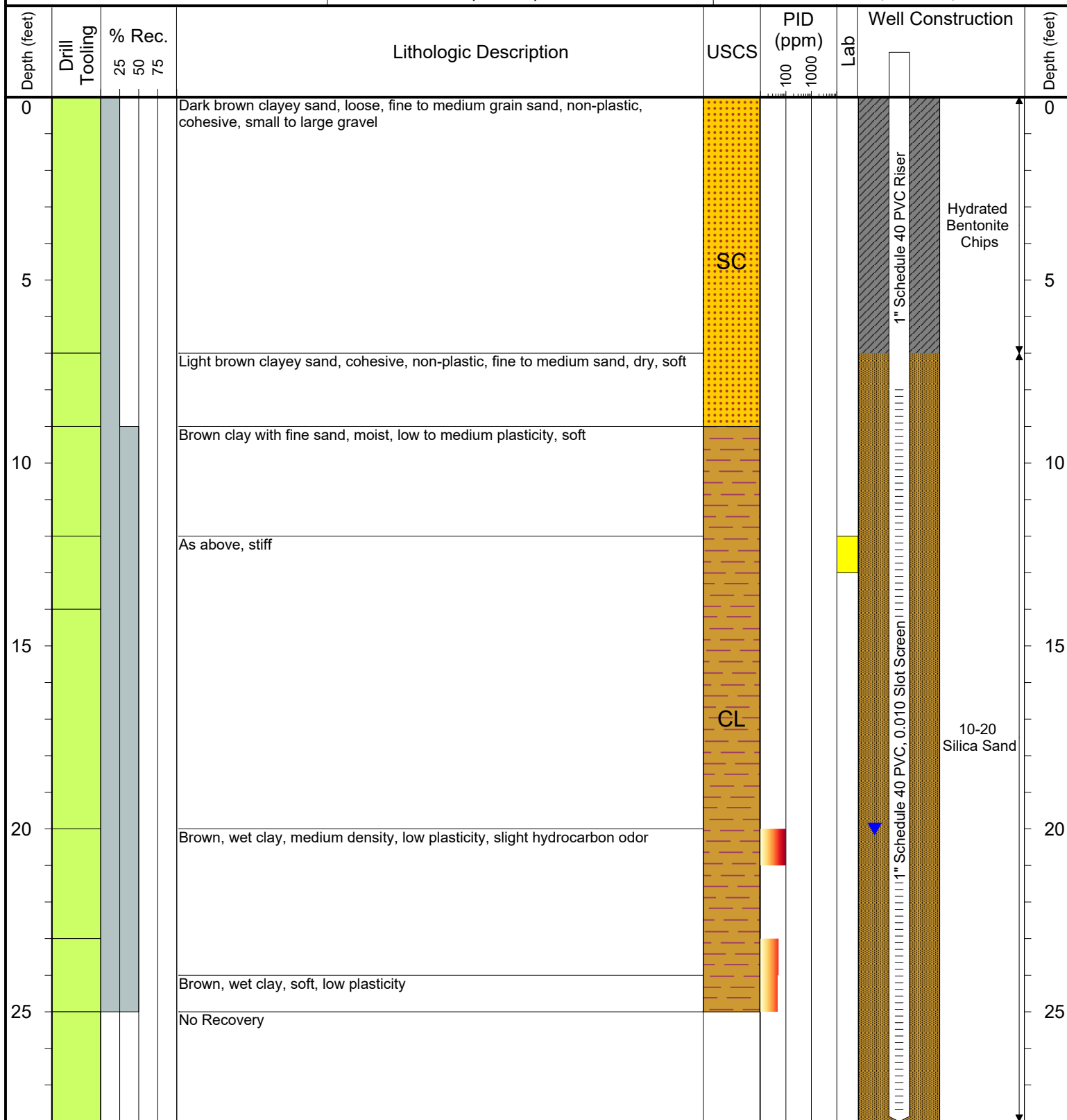
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281316951539

LONGITUDE (WGS 84): -104.62127271856

CASING ELEVATION (FT. AMSL): 4773.76

GROUND ELEVATION (FT. AMSL): 4771.87



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 18

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH05

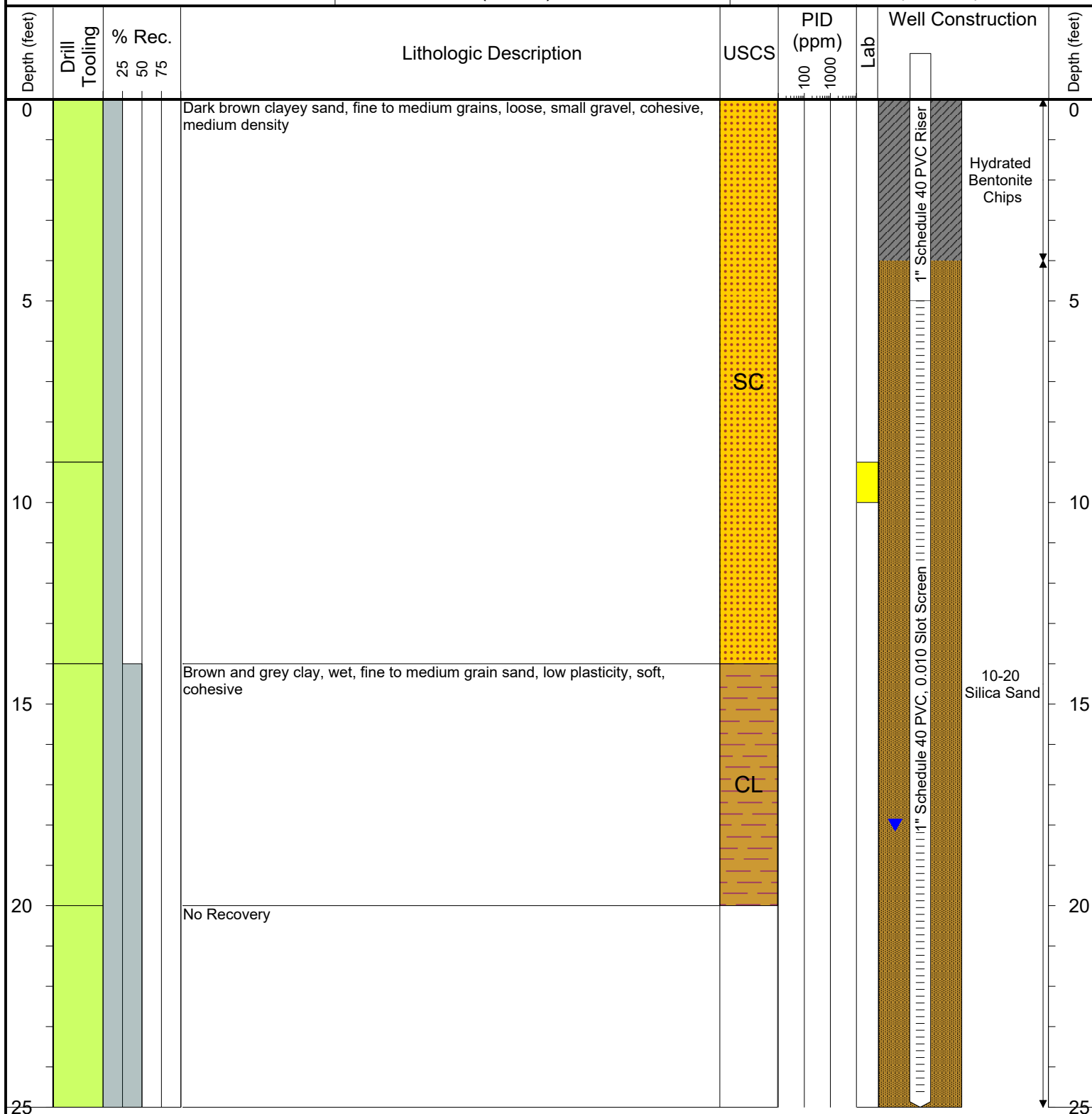
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281460169804

LONGITUDE (WGS 84): -104.62148162878

CASING ELEVATION (FT. AMSL): 4770.06

GROUND ELEVATION (FT. AMSL): 4766.75



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 30

DEPTH TO WATER (FT. BGS): 23

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH06

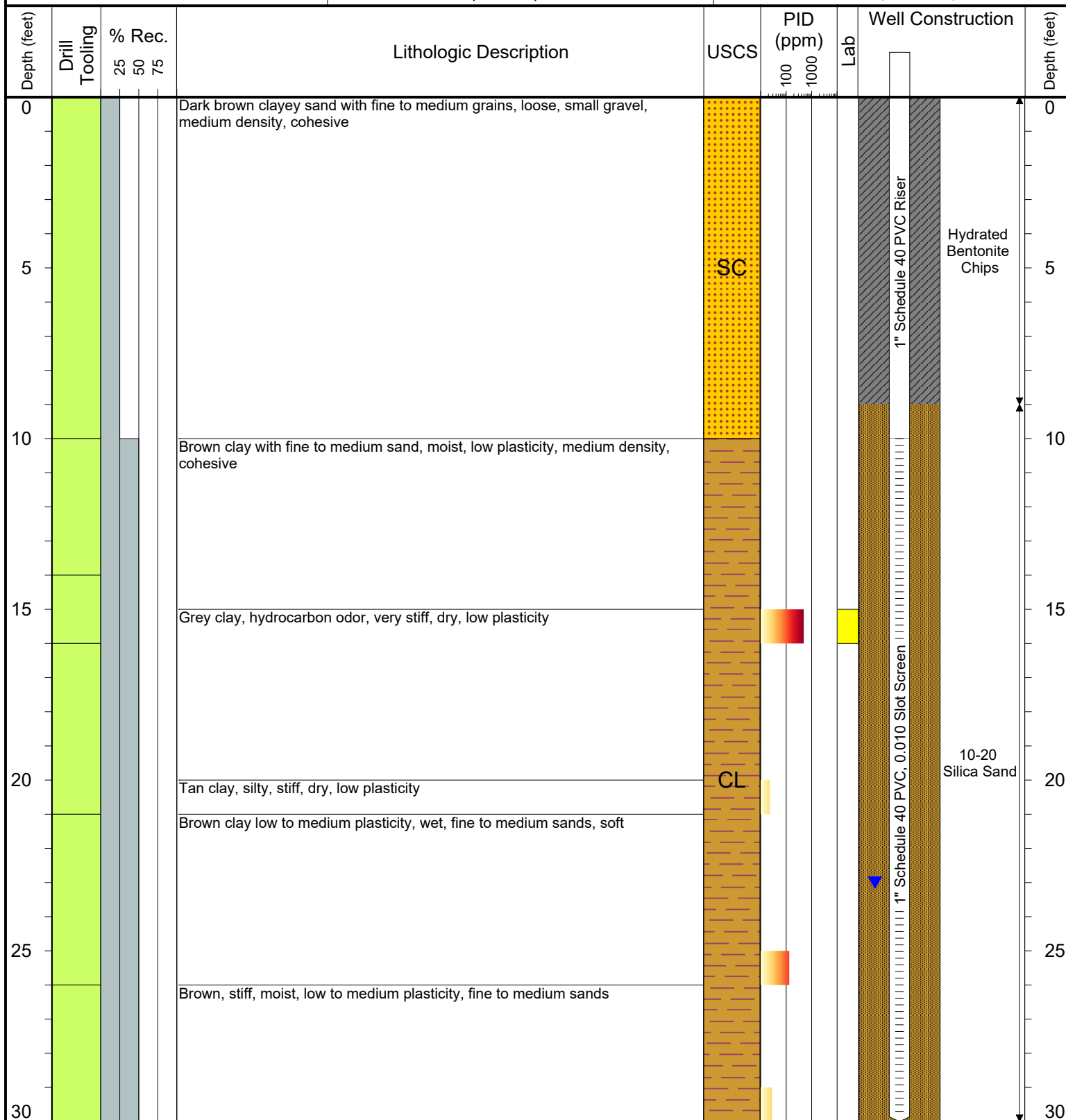
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281485954241

LONGITUDE (WGS 84): -104.62131324439

CASING ELEVATION (FT. AMSL): 4772.62

GROUND ELEVATION (FT. AMSL): 4769.18



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 18

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH07

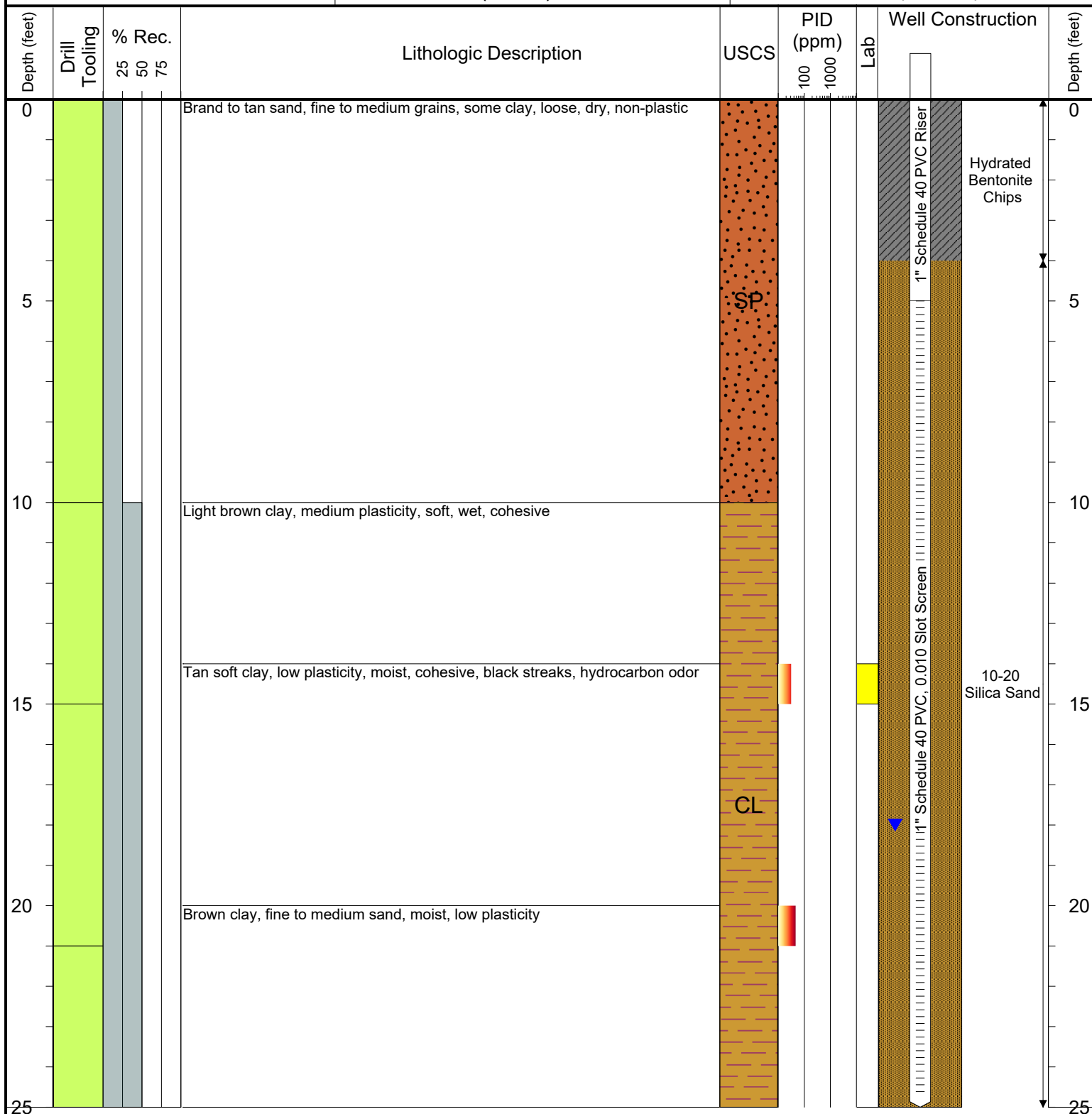
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281586623359

LONGITUDE (WGS 84): -104.62149626199

CASING ELEVATION (FT. AMSL): 4768.79

GROUND ELEVATION (FT. AMSL): 4765.73



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 10

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH08

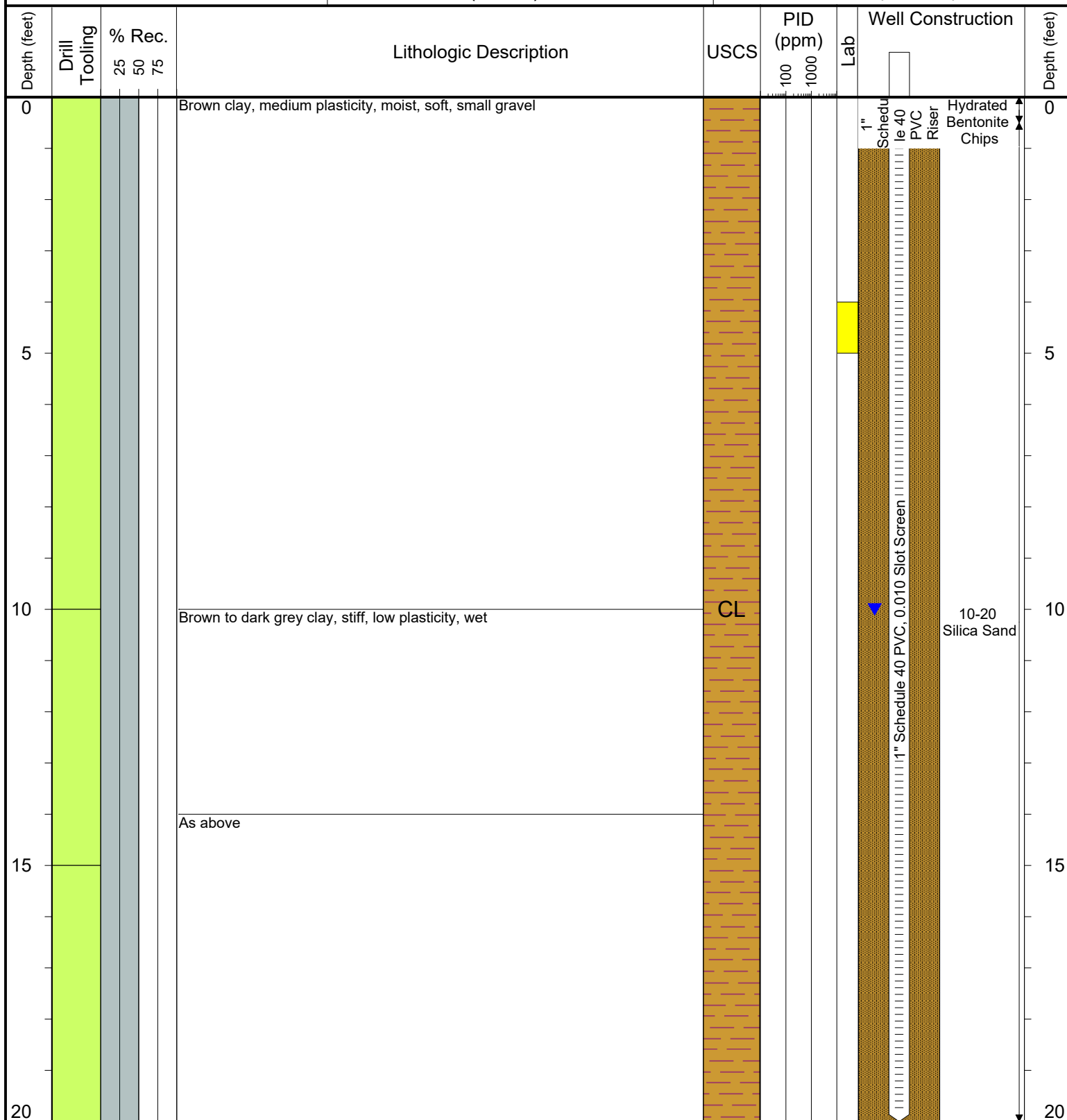
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.28147982513

LONGITUDE (WGS 84): -104.62161434265

CASING ELEVATION (FT. AMSL): 4769.6

GROUND ELEVATION (FT. AMSL): 4766.51



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Graham Basecke

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 10/18/18 - 10/18/18

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 14

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH09

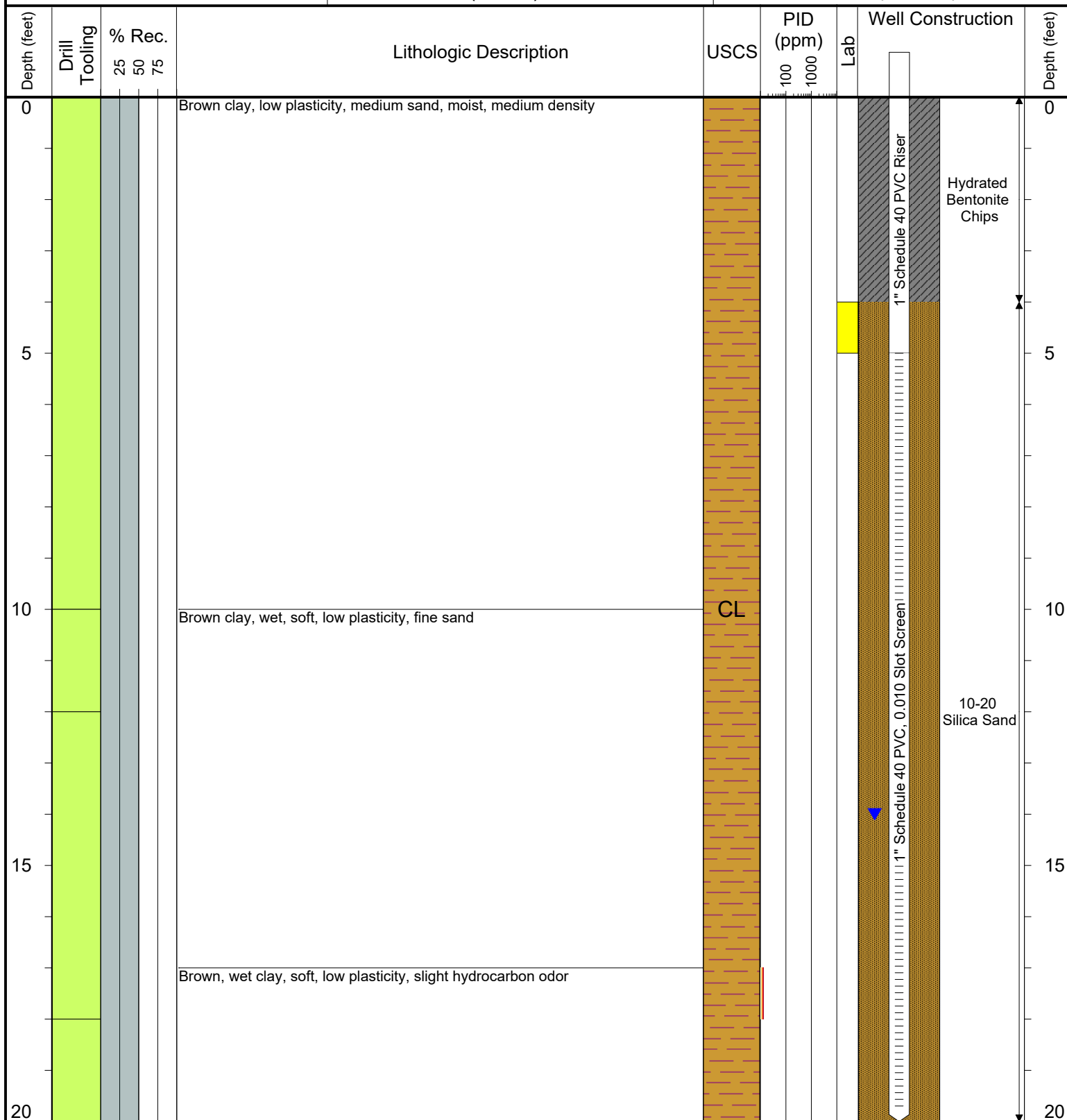
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281296973228

LONGITUDE (WGS 84): -104.62162758164

CASING ELEVATION (FT. AMSL): 4771.81

GROUND ELEVATION (FT. AMSL): 4768.74



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Max Garza

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 11/05/18 - 11/05/18

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 16.5

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH10

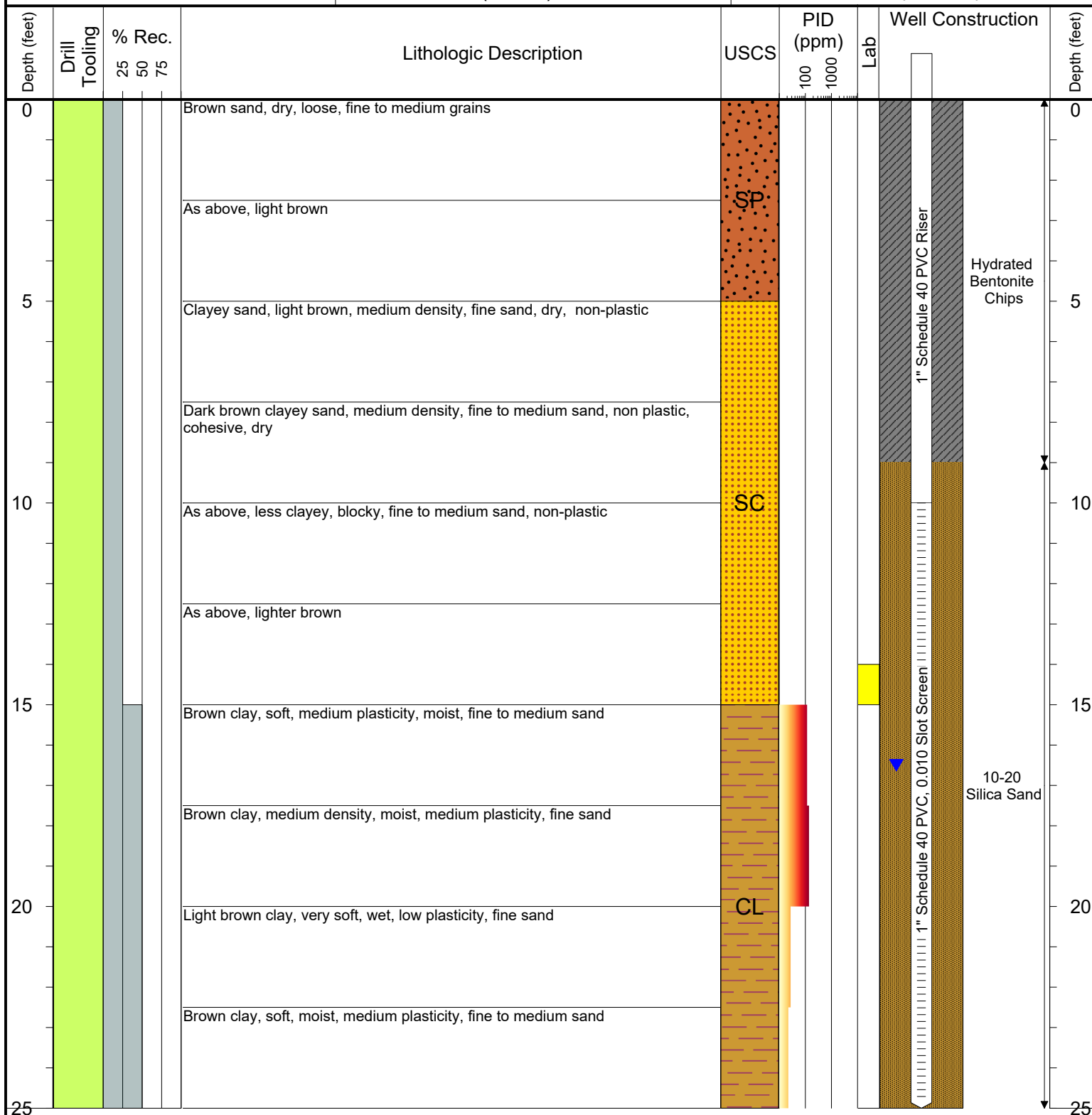
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281061880567

LONGITUDE (WGS 84): -104.62142007329

CASING ELEVATION (FT. AMSL): 4775.1

GROUND ELEVATION (FT. AMSL): 4772.12



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Max Garza

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 11/05/18 - 11/05/18

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 18

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH11

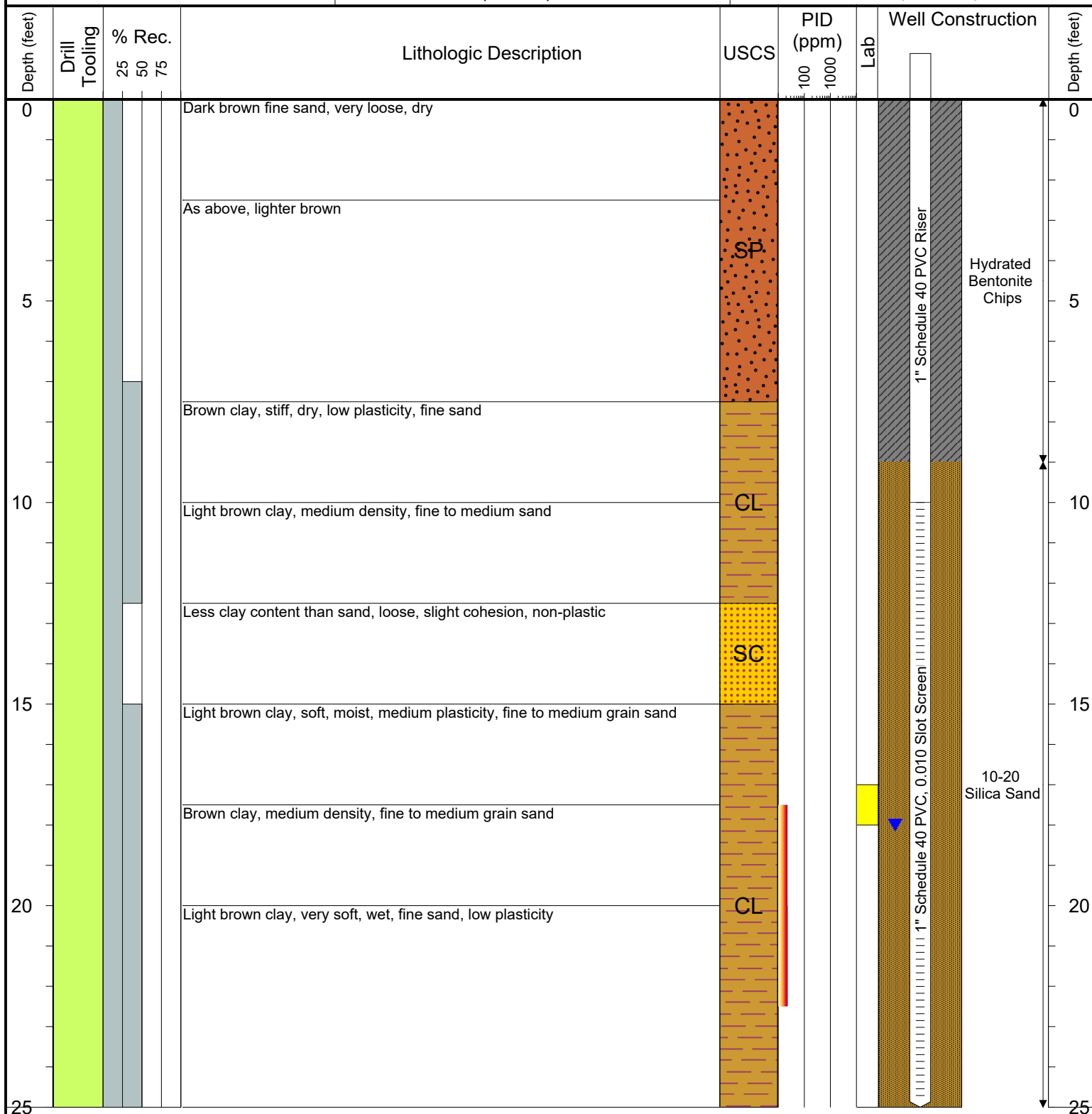
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281117753286

LONGITUDE (WGS 84): -104.62130663283

CASING ELEVATION (FT. AMSL): 4775.53

GROUND ELEVATION (FT. AMSL): 4772.81



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Max Garza

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 11/05/18 - 11/05/18

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 17

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH12

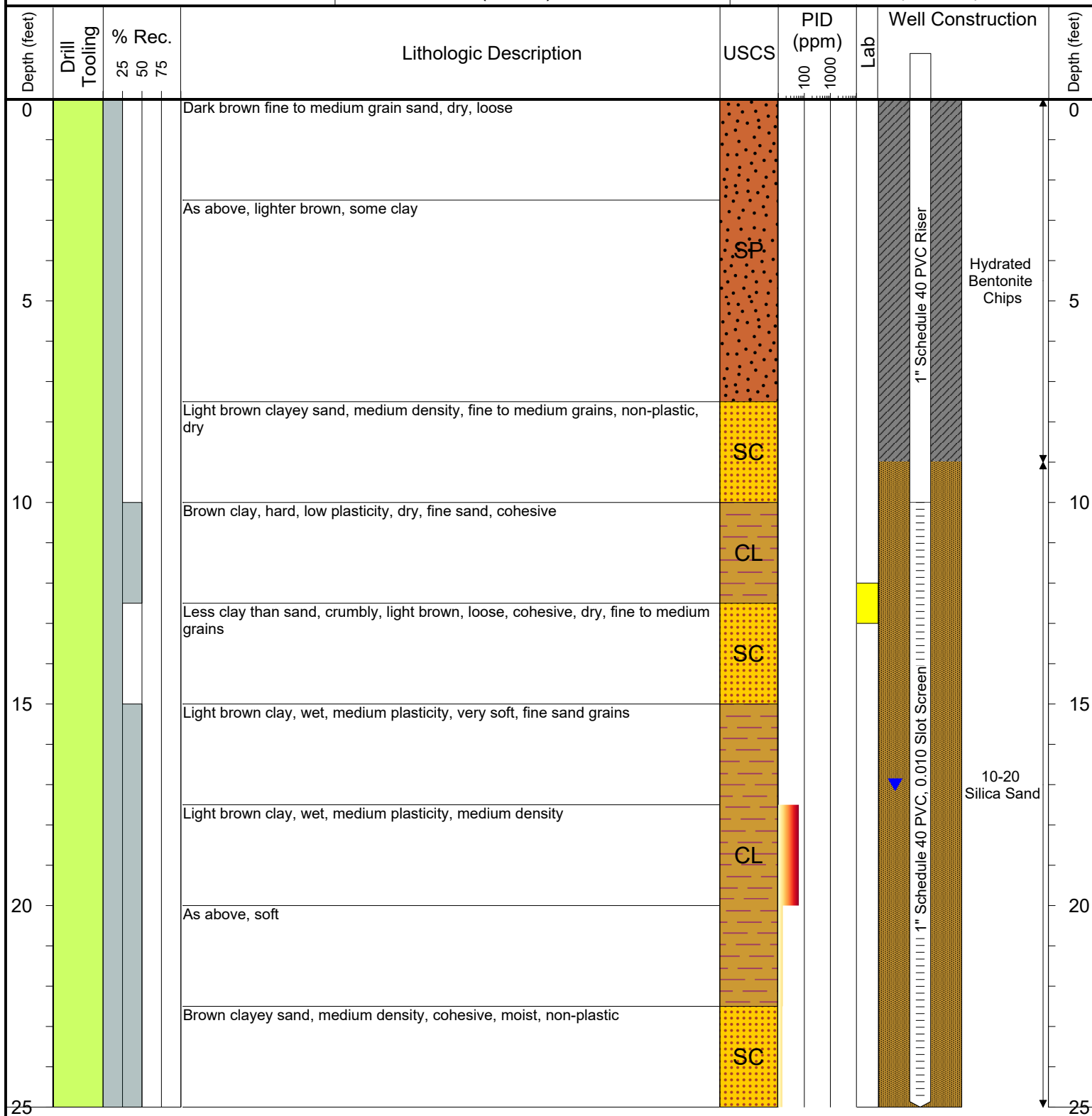
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281043999481

LONGITUDE (WGS 84): -104.62135262589

CASING ELEVATION (FT. AMSL): 4775.39

GROUND ELEVATION (FT. AMSL): 4772.87



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Max Garza

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 11/05/18 - 11/05/18

TOTAL WELL DEPTH (FT. BGS): 24

DEPTH TO WATER (FT. BGS): 18

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH13

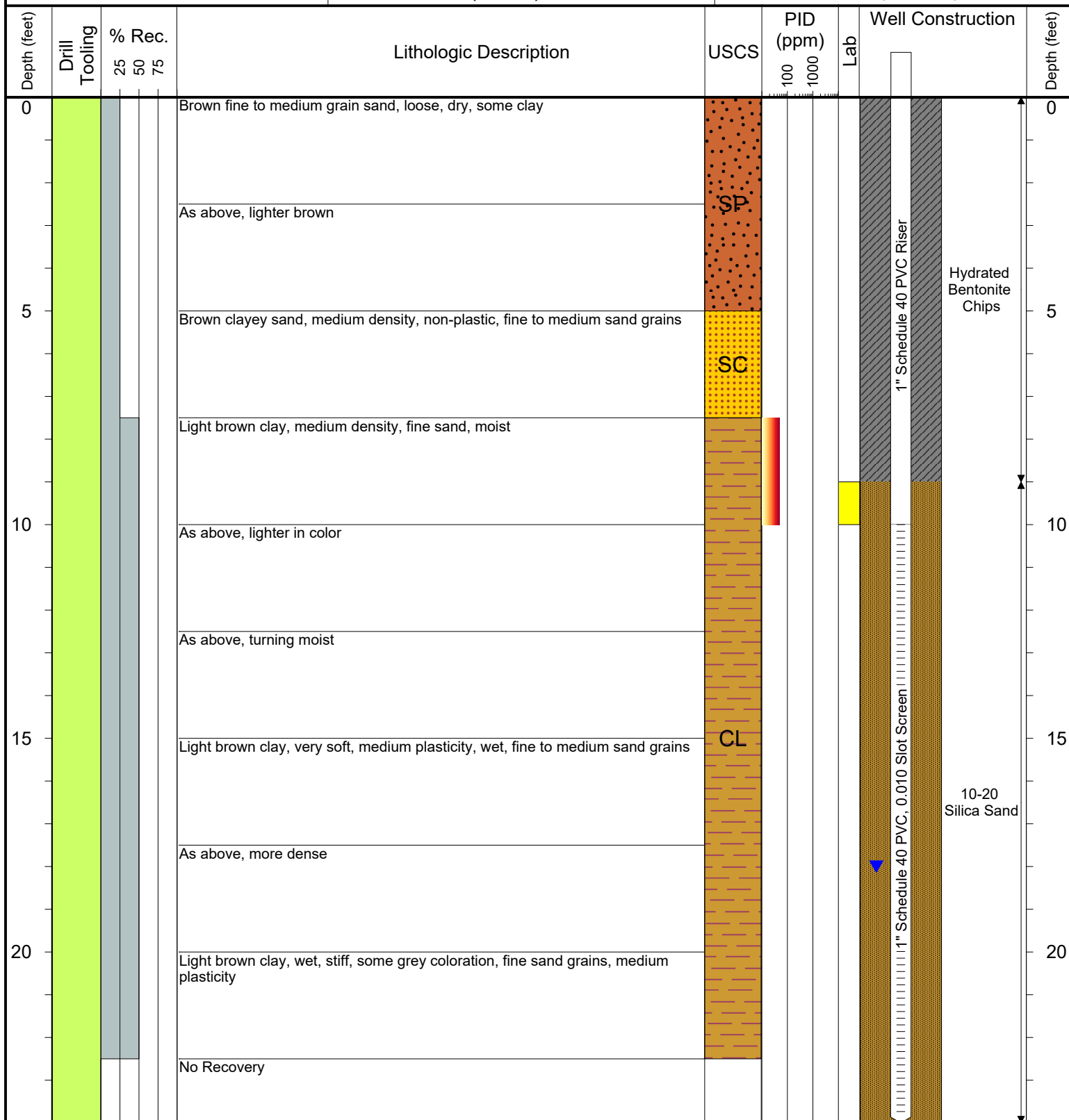
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281218025802

LONGITUDE (WGS 84): -104.62121286435

CASING ELEVATION (FT. AMSL): 4775.22

GROUND ELEVATION (FT. AMSL): 4772.14



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

Solid Stem Auger

Hand Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble

LOGGED BY: Max Garza

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 4

DATE STARTED - COMPLETED: 11/05/18 - 11/05/18

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): 17

Beebe Draw RG 26-9, 23

BORING / WELL ID: BH14

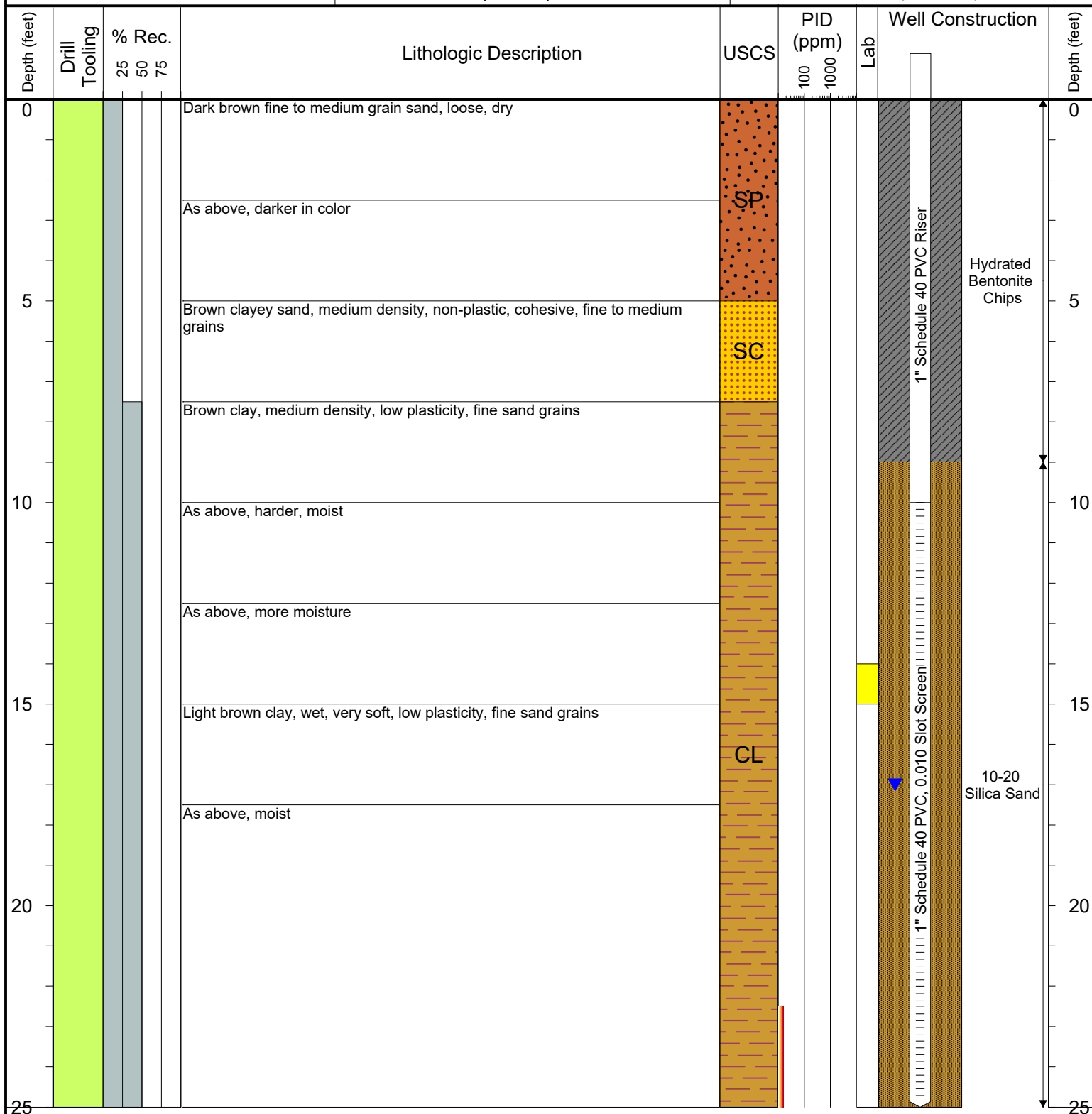
LOCATION: Weld County, Colorado

LATITUDE (WGS 84): 40.281369084703

LONGITUDE (WGS 84): -104.62122316767

CASING ELEVATION (FT. AMSL): 4774.89

GROUND ELEVATION (FT. AMSL): 4771.66



Drilling / Sample Method:

Macro-Core

Hollow Stem Auger

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

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 19, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Beebe Draw RG 26-9,23

Enclosed are the results of analyses for samples received by Summit Scientific on 10/18/18 18:43. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'P. Shrewsbury', written in a cursive style.

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/19/18 06:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@14-15'	1810232-01	Soil	10/18/18 11:10	10/18/18 18:43
BH02@19-20'	1810232-02	Soil	10/18/18 12:10	10/18/18 18:43
BH03@14-15'	1810232-03	Soil	10/18/18 13:20	10/18/18 18:43
BH04@12-13'	1810232-04	Soil	10/18/18 14:30	10/18/18 18:43

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

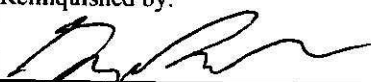

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

1810232

Client: Noble/Tasman
Address: -
City/State/Zip: -
Phone: 303-487-1228 Fax: -
Sampler Name: GB

Page 1 of 1

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: Beebe Draw RG 26-9, 23
Project Number: -

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:								Special Instructions				
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR									
BH01 @ 14-15'	10/18/18	1110	1			X			X					X	X									
BH02 @ 19-20'		1210	1			X			X					X	X									
BH03 @ 14-15'		1320	1			X			X					X	X									
BH04 @ 12-13'	↓	1430	1			X			X					X	X									
Relinquished by: 				Date/Time: 10-18-18 1640				Received by: 				Date/Time: 10-18-18 1640				Turn Around Time (Check)								Notes:
Relinquished by:				Date/Time:				Received by:				Date/Time:				Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/>								
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Sample Integrity: Temperature Upon Receipt: 2.9 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>								

Sample Receipt Checklist

S2 Work Order 1810232

Client: Noble/Tasman Client Project ID: Beebe Draw RB 26-9, 23

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)	<u>2.9</u>
-----------	------------

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			/	
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.

Custodian Printed Name or Initials

Signature of Custodian

10-18-18 1840
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/19/18 06:37

BH01@14-15'
1810232-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/18/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1810251	10/18/18	10/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.0066	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.039	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/18/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		133 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/18/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1810259	10/18/18	10/18/18	EPA 8015M	

Date Sampled: **10/18/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.0 %	30-150		"	"	"	"	

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/19/18 06:37

BH02@19-20'
1810232-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/18/18 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1810251	10/18/18	10/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/18/18 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/18/18 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1810259	10/18/18	10/18/18	EPA 8015M	

Date Sampled: **10/18/18 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		98.8 %	30-150		"	"	"	"	

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/19/18 06:37

BH03@14-15'
1810232-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/18/18 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1810251	10/18/18	10/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/18/18 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/18/18 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1810259	10/18/18	10/18/18	EPA 8015M	

Date Sampled: **10/18/18 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		98.6 %	30-150		"	"	"	"	

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/19/18 06:37

BH04@12-13'
1810232-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/18/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1810251	10/18/18	10/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/18/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/18/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1810259	10/18/18	10/18/18	EPA 8015M	

Date Sampled: **10/18/18 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		97.1 %	30-150		"	"	"	"	

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/19/18 06:37

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1810251 - EPA 5030 Soil MS

Blank (1810251-BLK1)

Prepared: 10/18/18 Analyzed: 10/19/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0447		"	0.0396	113	23-173				
Surrogate: Toluene-d8	0.0399		"	0.0400	99.8	20-170				
Surrogate: 4-Bromofluorobenzene	0.0436		"	0.0400	109	21-167				

LCS (1810251-BS1)

Prepared: 10/18/18 Analyzed: 10/19/18

Benzene	0.0786	0.0020	mg/kg	0.100	78.6	70-130				
Toluene	0.0831	0.0050	"	0.100	83.1	70-130				
Ethylbenzene	0.0874	0.0050	"	0.100	87.4	70-130				
m,p-Xylene	0.168	0.010	"	0.200	84.0	70-130				
o-Xylene	0.0874	0.0050	"	0.100	87.4	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0450		"	0.0396	114	23-173				
Surrogate: Toluene-d8	0.0408		"	0.0400	102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400	98.7	21-167				

Matrix Spike (1810251-MS1)

Source: 1810231-01

Prepared: 10/18/18 Analyzed: 10/19/18

Benzene	0.0764	0.0020	mg/kg	0.100	76.4	70-130				
Toluene	0.0819	0.0050	"	0.100	81.9	70-130				
Ethylbenzene	0.0881	0.0050	"	0.100	88.1	70-130				
m,p-Xylene	0.170	0.010	"	0.200	84.9	70-130				
o-Xylene	0.0892	0.0050	"	0.100	89.2	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0436		"	0.0396	110	23-173				
Surrogate: Toluene-d8	0.0407		"	0.0400	102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400	104	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/19/18 06:37

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 1810251 - EPA 5030 Soil MS

Matrix Spike Dup (1810251-MSD1)		Source: 1810231-01			Prepared: 10/18/18 Analyzed: 10/19/18					
Benzene	0.0771	0.0020	mg/kg	0.100	77.1	70-130	0.977	30		
Toluene	0.0831	0.0050	"	0.100	83.1	70-130	1.45	30		
Ethylbenzene	0.0884	0.0050	"	0.100	88.4	70-130	0.272	30		
m,p-Xylene	0.171	0.010	"	0.200	85.4	70-130	0.511	30		
o-Xylene	0.0891	0.0050	"	0.100	89.1	70-130	0.101	30		
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0396	114	23-173				
Surrogate: Toluene-d8	0.0404		"	0.0400	101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0413		"	0.0400	103	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/19/18 06:37

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1810259 - EPA 3550A

Blank (1810259-BLK1)

Prepared & Analyzed: 10/18/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1810259-BS1)

Prepared: 10/18/18 Analyzed: 10/19/18

C10-C28 (DRO) 595 50 mg/kg 500 119 70-130

Matrix Spike (1810259-MS1)

Source: 1810231-01

Prepared: 10/18/18 Analyzed: 10/19/18

C10-C28 (DRO) 530 50 mg/kg 500 18.4 102 70-130

Matrix Spike Dup (1810259-MSD1)

Source: 1810231-01

Prepared: 10/18/18 Analyzed: 10/19/18

C10-C28 (DRO) 528 50 mg/kg 500 18.4 102 70-130 0.292 20

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/19/18 06:37

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 26, 2018

Brandon Bruns

Tasman Geosciences

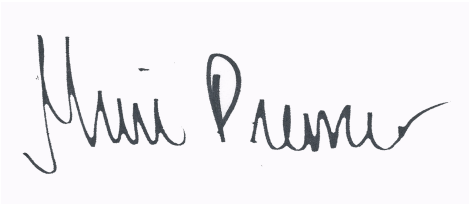
6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Beebe Draw RG 26-9,23

Enclosed are the results of analyses for samples received by Summit Scientific on 10/19/18 18:30. 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 is written in a cursive style and appears to read "Muri Premier".

Muri Premier For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH05@9-10'	1810259-01	Soil	10/19/18 09:40	10/19/18 18:30
BH06@15-16'	1810259-02	Soil	10/19/18 10:50	10/19/18 18:30
BH07@14-15'	1810259-03	Soil	10/19/18 11:34	10/19/18 18:30
BH08@4-5'	1810259-04	Soil	10/19/18 12:15	10/19/18 18:30
BH09@4-5'	1810259-05	Soil	10/19/18 13:00	10/19/18 18:30

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

303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client:	Noble/Tasman		
Address:	-		
City/State/Zip:	-		
Phone:	303-487-1228	Fax:	-
Sampler Name:	GB		

Project Manager:	Brandon Bruns, Invoice: Jacob Evans
E-Mail:	Bbruns@tasman-geo.com
Project Name:	Beebe Draw RG 26 A, 23
Project Number:	

				Preservative				Matrix				Analyze For:								Special Instructions			
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR								
B1405 @ 9-10'	10/19/18	0940	1			X			X				X	X									
B1406 @ 15-16'		1050	1			X			X				X	X									
B1407 @ 14-15'		1134	1			X			X				X	X									
B1408 @ 4-5'		1215	1			X			X				X	X									
B1409 @ 4-5'		1300	1			X			X				X	X									
Relinquished by: 				Date/Time: 10/19/18 1830				Received by: 				Date/Time: 10-19-18 1830				Turn Around Time (Check)				Notes:			
Relinquished by:				Date/Time:				Received by:				Date/Time:				Same Day <input type="checkbox"/> 72 Hours 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>							
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Sample Integrity: Temperature Upon Receipt: 8.9 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>							

Sample Receipt Checklist

S2 Work Order 1810259

Client: Noble/Tasman Client Project ID: Beebe Draw RG 26-9, 23

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)	<u>8.9</u>
-----------	------------

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				
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.				

cf
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

10.19.18 1830
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
10/26/18 15:04

BH05@9-10'
1810259-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/19/18 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1810292	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/19/18 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/19/18 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1810293	10/22/18	10/24/18	EPA 8015M	

Date Sampled: **10/19/18 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		90.6 %	30-150		"	"	"	"	

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

BH06@15-16'
1810259-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/19/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1810292	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.027	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.070	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/19/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		192 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/19/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1810293	10/22/18	10/24/18	EPA 8015M	

Date Sampled: **10/19/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.6 %	30-150		"	"	"	"	

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

BH07@14-15'
1810259-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/19/18 11:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1810292	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/19/18 11:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/19/18 11:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1810293	10/22/18	10/24/18	EPA 8015M	

Date Sampled: **10/19/18 11:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		94.9 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

BH08@4-5'
1810259-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/19/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1810292	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/19/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/19/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1810293	10/22/18	10/24/18	EPA 8015M	

Date Sampled: **10/19/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		92.6 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

BH09@4-5'
1810259-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/19/18 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1810292	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/19/18 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/19/18 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1810293	10/22/18	10/24/18	EPA 8015M	

Date Sampled: **10/19/18 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		92.4 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1810292 - EPA 5030 Soil MS

Blank (1810292-BLK1)

Prepared: 10/22/18 Analyzed: 10/23/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0412		"	0.0396	104	23-173				
Surrogate: Toluene-d8	0.0391		"	0.0400	97.8	20-170				
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0400	102	21-167				

LCS (1810292-BS1)

Prepared: 10/22/18 Analyzed: 10/23/18

Benzene	0.106	0.0020	mg/kg	0.100	106	70-130				
Toluene	0.109	0.0050	"	0.100	109	70-130				
Ethylbenzene	0.113	0.0050	"	0.100	113	70-130				
m,p-Xylene	0.224	0.010	"	0.200	112	70-130				
o-Xylene	0.110	0.0050	"	0.100	110	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0427		"	0.0396	108	23-173				
Surrogate: Toluene-d8	0.0407		"	0.0400	102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400	99.8	21-167				

Matrix Spike (1810292-MS1)

Source: 1810258-01

Prepared: 10/22/18 Analyzed: 10/23/18

Benzene	0.0944	0.0020	mg/kg	0.100	0.00396	90.4	70-130			
Toluene	0.173	0.0050	"	0.100	0.144	29.1	70-130			QM-07
Ethylbenzene	0.171	0.0050	"	0.100	0.131	40.8	70-130			QM-07
m,p-Xylene	0.317	0.010	"	0.200	0.227	44.9	70-130			QM-07
o-Xylene	0.207	0.0050	"	0.100	0.168	38.9	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0432		"	0.0396	109	23-173				
Surrogate: Toluene-d8	0.0389		"	0.0400	97.3	20-170				
Surrogate: 4-Bromofluorobenzene	0.0482		"	0.0400	120	21-167				

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

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 1810292 - EPA 5030 Soil MS

Matrix Spike Dup (1810292-MSD1)

Source: 1810258-01

Prepared: 10/22/18 Analyzed: 10/23/18

Benzene	0.0826	0.0020	mg/kg	0.100	0.00396	78.6	70-130	13.3	30	
Toluene	0.159	0.0050	"	0.100	0.144	15.0	70-130	8.50	30	QM-07
Ethylbenzene	0.146	0.0050	"	0.100	0.131	15.3	70-130	16.1	30	QM-07
m,p-Xylene	0.276	0.010	"	0.200	0.227	24.4	70-130	13.8	30	QM-07
o-Xylene	0.189	0.0050	"	0.100	0.168	20.7	70-130	9.21	30	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0454		"	0.0396		115	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		98.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0473		"	0.0400		118	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/26/18 15:04

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1810293 - EPA 3550A

Blank (1810293-BLK1)

Prepared: 10/22/18 Analyzed: 10/24/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1810293-BS1)

Prepared: 10/22/18 Analyzed: 10/24/18

C10-C28 (DRO) 598 50 mg/kg 500 120 70-130

Matrix Spike (1810293-MS1)

Source: 1810258-01

Prepared: 10/22/18 Analyzed: 10/24/18

C10-C28 (DRO) 1200 50 mg/kg 500 843 72.2 70-130

Matrix Spike Dup (1810293-MSD1)

Source: 1810258-01

Prepared: 10/22/18 Analyzed: 10/24/18

C10-C28 (DRO) 1570 50 mg/kg 500 843 145 70-130 26.1 20 QM-07

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/26/18 15:04

Notes and Definitions

S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 23, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Beebe Draw RG 26-9,23

Enclosed are the results of analyses for samples received by Summit Scientific on 10/22/18 18:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/23/18 14:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1810270-01	Water	10/22/18 11:11	10/22/18 18:30
BH02	1810270-02	Water	10/22/18 13:50	10/22/18 18:30
BH03	1810270-03	Water	10/22/18 14:05	10/22/18 18:30
BH04	1810270-04	Water	10/22/18 11:30	10/22/18 18:30
BH05	1810270-05	Water	10/22/18 14:20	10/22/18 18:30
BH06	1810270-06	Water	10/22/18 13:30	10/22/18 18:30
BH07	1810270-07	Water	10/22/18 13:10	10/22/18 18:30
BH08	1810270-08	Water	10/22/18 12:50	10/22/18 18:30
BH09	1810270-09	Water	10/22/18 10:55	10/22/18 18:30

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.

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Project Manager: Brandon Brous Invoice: Jacob Evans
E-Mail: bbruns@tesma-jco.com
Project Name: Beebe Draw 26-9,23
Project Number: —

				Preservative		Matrix		Analyze For:										Special Instructions		
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTEX								
BH01	10/22/18	1111	3	X				X				X								
BH02		1350		X																
BH03		1405				X														
BH04		1130		X																
BH05		1420				X														
BH06		1330		X																
BH07		1310		X																
BH08		1250		X																
BH09		1055		X																

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
	10/22/18 1840		10.22.18 1840	Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: 10.0 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 1810270

Client: Noble/Tasman Client Project ID: Beebe Draw 26-9,23

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)	<u>10.0</u>
-----------	-------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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⁾ ?	<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⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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 JP

Signature of Custodian [Signature]

Date/Time 10.22.18 1840



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
10/23/18 14:13

BH01
1810270-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 11:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	210	1.0		ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	1.5	1.0		"	"	"	"	"	"	
Ethylbenzene	240	1.0		"	"	"	"	"	"	
Xylenes (total)	3300	200		"	100	"	"	"	"	

Date Sampled: **10/22/18 11:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		109 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		119 %		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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/23/18 14:13

BH02
1810270-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 13:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	1.1	1.0	"	"	"	"	"	"	
Xylenes (total)	7.9	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 13:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %		23-173	"	"	"	"	
Surrogate: Toluene-d8		103 %		20-170	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %		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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/23/18 14:13

BH03
1810270-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
10/23/18 14:13

BH04
1810270-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	48	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	150	1.0	"	"	"	"	"	"	
Xylenes (total)	590	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		124 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/23/18 14:13

BH05
1810270-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	2.9	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/23/18 14:13

BH06
1810270-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	6.1	1.0	"	"	"	"	"	"	
Xylenes (total)	19	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.3 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
10/23/18 14:13

BH07
1810270-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.9 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
10/23/18 14:13

BH08
1810270-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		77.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.5 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/23/18 14:13

BH09
1810270-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/22/18 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1810306	10/22/18	10/23/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	16	1.0	"	"	"	"	"	"	
Xylenes (total)	130	2.0	"	"	"	"	"	"	

Date Sampled: **10/22/18 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		76.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.3 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/23/18 14:13

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 1810306 - EPA 5030 Water MS

Blank (1810306-BLK1)

Prepared: 10/22/18 Analyzed: 10/23/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2		104	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		104	21-167			

LCS (1810306-BS1)

Prepared: 10/22/18 Analyzed: 10/23/18

Benzene	47.8	1.0	ug/l	50.0		95.7	70-130			
Toluene	47.1	1.0	"	50.0		94.2	70-130			
Ethylbenzene	43.8	1.0	"	50.0		87.6	70-130			
m,p-Xylene	86.8	2.0	"	100		86.8	70-130			
o-Xylene	47.8	1.0	"	50.0		95.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	12.6		"	13.2		95.6	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		105	21-167			

Matrix Spike (1810306-MS1)

Source: 1810270-02

Prepared: 10/22/18 Analyzed: 10/23/18

Benzene	49.8	1.0	ug/l	50.0	ND	99.6	70-130			
Toluene	48.1	1.0	"	50.0	ND	96.1	70-130			
Ethylbenzene	44.6	1.0	"	50.0	1.13	87.0	70-130			
m,p-Xylene	89.3	2.0	"	100	7.86	81.4	70-130			
o-Xylene	49.9	1.0	"	50.0	ND	99.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.2		99.9	23-173			
Surrogate: Toluene-d8	13.5		"	13.3		101	20-170			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/23/18 14:13

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 1810306 - EPA 5030 Water MS

Matrix Spike Dup (1810306-MSD1)		Source: 1810270-02			Prepared: 10/22/18 Analyzed: 10/23/18					
Benzene	49.8	1.0	ug/l	50.0	ND	99.5	70-130	0.0804	30	
Toluene	49.9	1.0	"	50.0	ND	99.9	70-130	3.82	30	
Ethylbenzene	47.0	1.0	"	50.0	1.13	91.8	70-130	5.30	30	
m,p-Xylene	95.5	2.0	"	100	7.86	87.7	70-130	6.75	30	
o-Xylene	52.7	1.0	"	50.0	ND	105	70-130	5.51	30	
Surrogate: 1,2-Dichloroethane-d4	13.1		"	13.2		99.1	23-173			
Surrogate: Toluene-d8	14.0		"	13.3		105	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/23/18 14:13

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 07, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Beebe Draw RG 26-9,23

Enclosed are the results of analyses for samples received by Summit Scientific on 11/05/18 18:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH10@15'	1811049-01	Soil	11/05/18 09:30	11/05/18 18:30
BH11@17.5'	1811049-02	Soil	11/05/18 10:45	11/05/18 18:30
BH12@12.5'	1811049-03	Soil	11/05/18 11:40	11/05/18 18:30
BH13@10'	1811049-04	Soil	11/05/18 12:50	11/05/18 18:30
BH14@15'	1811049-05	Soil	11/05/18 13:45	11/05/18 18:30

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.

1811049

Page 1 of 1

Project Manager:	Brandon Bruns, Invoice: Jacob Evans
E-Mail:	Bbruns@tasman-geo.com
Project Name:	Beebe Draw R6 26-9, 23
Project Number:	N/A

[illegible]

Sample Receipt Checklist

S2 Work Order: 1811049

Client: Noble/Tasman Client Project ID: Beebe Draw RC 26-9, 23

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)	<u>6.2</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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⁾ ?	<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 type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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.				

UR
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

11.5.18 1830
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

BH10@15'
1811049-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/05/18 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1811064	11/06/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/05/18 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		95.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/05/18 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1811065	11/06/18	11/06/18	EPA 8015M	

Date Sampled: **11/05/18 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

BH11@17.5'
1811049-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/05/18 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811064	11/06/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/05/18 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		94.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/05/18 10:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811065	11/06/18	11/06/18	EPA 8015M	

Date Sampled: **11/05/18 10:45**

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

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

BH12@12.5'
1811049-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/05/18 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811064	11/06/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/05/18 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		91.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/05/18 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811065	11/06/18	11/06/18	EPA 8015M	

Date Sampled: **11/05/18 11:40**

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

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

BH13@10'
1811049-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/05/18 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811064	11/06/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/05/18 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		93.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.0 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/05/18 12:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811065	11/06/18	11/07/18	EPA 8015M	

Date Sampled: **11/05/18 12:50**

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

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

BH14@15'
1811049-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/05/18 13:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811064	11/06/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/05/18 13:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/05/18 13:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811065	11/06/18	11/07/18	EPA 8015M	

Date Sampled: **11/05/18 13:45**

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

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
11/07/18 16:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1811064 - EPA 5030 Soil MS

Blank (1811064-BLK1)

Prepared: 11/06/18 Analyzed: 11/07/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0396		93.6	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		96.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

LCS (1811064-BS1)

Prepared: 11/06/18 Analyzed: 11/07/18

Benzene	0.102	0.0020	mg/kg	0.100		102	70-130			
Toluene	0.103	0.0050	"	0.100		103	70-130			
Ethylbenzene	0.109	0.0050	"	0.100		109	70-130			
m,p-Xylene	0.217	0.010	"	0.200		108	70-130			
o-Xylene	0.108	0.0050	"	0.100		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0350		"	0.0396		88.5	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.0	21-167			

Matrix Spike (1811064-MS1)

Source: 1811024-01

Prepared: 11/06/18 Analyzed: 11/07/18

Benzene	0.0799	0.0020	mg/kg	0.100	ND	79.9	70-130			
Toluene	0.0818	0.0050	"	0.100	ND	81.8	70-130			
Ethylbenzene	0.0966	0.0050	"	0.100	ND	96.6	70-130			
m,p-Xylene	0.184	0.010	"	0.200	ND	91.8	70-130			
o-Xylene	0.0974	0.0050	"	0.100	ND	97.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0363		"	0.0396		91.7	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
11/07/18 16:00

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 1811064 - EPA 5030 Soil MS

Matrix Spike Dup (1811064-MSD1)		Source: 1811024-01			Prepared: 11/06/18 Analyzed: 11/07/18					
Benzene	0.0755	0.0020	mg/kg	0.100	ND	75.5	70-130	5.60	30	
Toluene	0.0766	0.0050	"	0.100	ND	76.6	70-130	6.55	30	
Ethylbenzene	0.0901	0.0050	"	0.100	ND	90.1	70-130	6.91	30	
m,p-Xylene	0.155	0.010	"	0.200	ND	77.5	70-130	16.8	30	
o-Xylene	0.0910	0.0050	"	0.100	ND	91.0	70-130	6.78	30	
Surrogate: 1,2-Dichloroethane-d4	0.0353		"	0.0396		89.2	23-173			
Surrogate: Toluene-d8	0.0388		"	0.0400		96.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.6	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1811065 - EPA 3550A

Blank (1811065-BLK1)

Prepared & Analyzed: 11/06/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1811065-BS1)

Prepared & Analyzed: 11/06/18

C10-C28 (DRO) 481 50 mg/kg 500 96.3 70-130

Matrix Spike (1811065-MS1)

Source: 1811049-01

Prepared & Analyzed: 11/06/18

C10-C28 (DRO) 483 50 mg/kg 500 19.5 92.7 70-130

Matrix Spike Dup (1811065-MSD1)

Source: 1811049-01

Prepared & Analyzed: 11/06/18

C10-C28 (DRO) 486 50 mg/kg 500 19.5 93.2 70-130 0.530 20

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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 16:00

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 07, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Beebe Draw RG 26-9,23

Enclosed are the results of analyses for samples received by Summit Scientific on 11/06/18 18:14. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 06:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH10	1811060-01	Water	11/06/18 12:00	11/06/18 18:14
BH11	1811060-02	Water	11/06/18 12:10	11/06/18 18:14
BH12	1811060-03	Water	11/06/18 12:20	11/06/18 18:14
BH13	1811060-04	Water	11/06/18 12:30	11/06/18 18:14
BH14	1811060-05	Water	11/06/18 12:40	11/06/18 18:14

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

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

1811060

Page 1 of 1

Client: Noble/Tasman
Address: -
City/State/Zip: -
Phone: 979-255-4235 Fax: -
Sampler Name: Max Garza

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: Bede Draw R6 26-9, 23
Project Number: N/A

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:						Special Instructions	
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR			
BH10	11/6/18	12 00	3			X		X					X					
BH11		12 10																
BH12		12 20																
BH13		12 30																
BH14		12 40																
Relinquished by: <u>Max</u>				Date/Time: <u>11/6/18 1815</u>		Received by: <u>[Signature]</u>				Date/Time: <u>11-6-18 1815</u>		Turn Around Time (Check)						Notes:
Relinquished by:				Date/Time:		Received by:				Date/Time:		Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/>						
Relinquished by:				Date/Time:		Received in Lab by:				Date/Time:		Sample Integrity: Temperature Upon Receipt: <u>2.9</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>						

Sample Receipt Checklist

S2 Work Order 1811060

Client: Noble/Tasman Client Project ID: Beebe Draw RA 26-9, 23

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)	<u>2.9</u>
-----------	------------

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.	<u>/</u>			
Were all samples received intact ⁽¹⁾ ?	<u>/</u>			
Was adequate sample volume provided ⁽¹⁾ ?	<u>/</u>			
If custody seals are present, are they intact ⁽¹⁾ ?			<u>/</u>	
Are samples with holding times due within 48 hours sample due within 48 hours present?			<u>/</u>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<u>/</u>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<u>/</u>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<u>/</u>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<u>/</u>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<u>/</u>		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			<u>/</u>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<u>/</u>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<u>/</u>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

UP
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

11.6.18 1815
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
11/07/18 06:25

BH10
1811060-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/06/18 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	8.6	1.0		ug/l	1	1811067	11/06/18	11/06/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	120	1.0		"	"	"	"	"	"	
Xylenes (total)	990	200		"	100	"	"	"	"	

Date Sampled: **11/06/18 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		109 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
11/07/18 06:25

BH11
1811060-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/06/18 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	9.4	1.0	ug/l	1	1811067	11/06/18	11/06/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	23	1.0	"	"	"	"	"	"	
Xylenes (total)	110	2.0	"	"	"	"	"	"	

Date Sampled: **11/06/18 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	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
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brun

Reported:
11/07/18 06:25

BH12
1811060-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/06/18 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	4.2	1.0	ug/l	1	1811067	11/06/18	11/06/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	51	1.0	"	"	"	"	"	"	
Xylenes (total)	250	2.0	"	"	"	"	"	"	

Date Sampled: **11/06/18 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 06:25

BH13
1811060-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/06/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811067	11/06/18	11/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/06/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.3 %	21-167		"	"	"	"	

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 06:25

BH14
1811060-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/06/18 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811067	11/06/18	11/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	42	1.0	"	"	"	"	"	"	
Xylenes (total)	220	2.0	"	"	"	"	"	"	

Date Sampled: **11/06/18 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		118 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 06:25

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 1811067 - EPA 5030 Water MS

Blank (1811067-BLK1)

Prepared: 11/06/18 Analyzed: 11/07/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.2	103		23-173			
Surrogate: Toluene-d8	13.1		"	13.3	98.1		20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3	95.9		21-167			

LCS (1811067-BS1)

Prepared: 11/06/18 Analyzed: 11/07/18

Benzene	29.2	1.0	ug/l	33.3	87.5		70-130			
Toluene	32.4	1.0	"	33.3	97.1		70-130			
Ethylbenzene	35.5	1.0	"	33.3	106		70-130			
m,p-Xylene	69.2	2.0	"	66.7	104		70-130			
o-Xylene	34.4	1.0	"	33.3	103		70-130			
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.2	103		23-173			
Surrogate: Toluene-d8	13.1		"	13.3	98.0		20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3	97.1		21-167			

Matrix Spike (1811067-MS1)

Source: 1811038-01

Prepared: 11/06/18 Analyzed: 11/07/18

Benzene	28.5	1.0	ug/l	33.3	ND	85.6	70-130			
Toluene	31.0	1.0	"	33.3	ND	92.9	70-130			
Ethylbenzene	33.8	1.0	"	33.3	ND	101	70-130			
m,p-Xylene	65.0	2.0	"	66.7	ND	97.4	70-130			
o-Xylene	32.9	1.0	"	33.3	ND	98.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2	106		23-173			
Surrogate: Toluene-d8	13.1		"	13.3	98.0		20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3	95.0		21-167			

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
11/07/18 06:25

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 1811067 - EPA 5030 Water MS

Matrix Spike Dup (1811067-MSD1)		Source: 1811038-01			Prepared: 11/06/18 Analyzed: 11/07/18					
Benzene	30.5	1.0	ug/l	33.3	ND	91.5	70-130	6.71	30	
Toluene	33.2	1.0	"	33.3	ND	99.7	70-130	6.98	30	
Ethylbenzene	36.6	1.0	"	33.3	ND	110	70-130	8.00	30	
m,p-Xylene	71.7	2.0	"	66.7	ND	108	70-130	9.86	30	
o-Xylene	35.0	1.0	"	33.3	ND	105	70-130	6.30	30	
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2		106	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9	21-167			

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Beebe Draw RG 26-9,23

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/07/18 06:25

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