

BALBOA C20-03, 23, 09SX
FLOW LINE RELEASE
API #: 05-123-13251
Spill Tracking #: 447161
Remediation Project #: Not Assigned

THIRD QUARTER 2016
Analytical Tables, Figures,
and Laboratory Reports

September 27, 2016



Image: Google

PREPARED ON BEHALF OF

Noble Energy, Inc.
1600 Broadway
Denver, CO 80202



PREPARED BY

Tasman Geosciences, Inc.
6899 Pecos Street, Unit C
Denver, CO 80221



TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - BALBOA C20-03, 23, 09SX FLOW LINE RELEASE

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
SS01@3'	08/11/16	<0.0020	1.7	<0.0050	22	4,600	3,100	1.2
SS02@3'	08/11/16	3.6	44	16	110	5,000	2,700	3.2
SS03@3'	08/11/16	2.7	35	6.5	69	5,400	2,800	2.6
SS04@3'	08/11/16	0.54	17	3.7	37	3,100	900	1.5
BH01@3'	08/11/16	0.66	4.5	0.84	16	800	660	1.4
BH02@1'	08/11/16	0.021	0.044	0.026	31	150	650	0.19
BH03@3'	08/11/16	4.1	47	11	160	2,000	700	2.6
BH04@3'	08/11/16	1.8	19	2.9	100	1,400	380	2.1
BH05@2'	08/11/16	0.0060	0.036	<0.0050	51	1,400	280	0.11
BH06@2'	08/11/16	<0.0020	<0.0050	<0.0050	1.6	77	490	0.041
BH07@1'	08/11/16	<0.0020	0.044	<0.0050	60	2,900	770	2.7
BH08@1'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH09@2'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH10@3'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	0.012
BH11@2'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH12@2'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH13@3'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	0.011
BH14@1'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH15@2'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH16@1'	08/11/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

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. - BALBOA C20-03, 23, 09SX FLOW LINE RELEASE

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
GW01	07/29/16	1,000	1,800	380	4,400
BH01	08/12/16	170	<1.0	<1.0	24
BH02	08/12/16	Not Sampled - LNAPL Present			
BH03	08/12/16	Not Sampled - LNAPL Present			
BH04	08/12/16	Not Sampled - LNAPL Present			
BH05	08/12/16	50	1.4	<1.0	130
BH06	08/12/16	<1.0	<1.0	<1.0	<1.0
BH07	08/12/16	Not Sampled - LNAPL Present			
BH08	08/12/16	<1.0	<1.0	<1.0	<1.0
BH09	08/12/16	3,500	<1.0	4.8	2.2
BH10	08/12/16	Not Sampled - LNAPL Present			
BH11	08/12/16	<1.0	<1.0	<1.0	<1.0
BH12	08/12/16	<1.0	<1.0	<1.0	<1.0
BH13	08/12/16	<1.0	<1.0	<1.0	<1.0
BH14	08/12/16	<1.0	<1.0	<1.0	<1.0
BH15	08/12/16	260	<1.0	13	46
BH16	08/12/16	<1.0	<1.0	<1.0	6.1

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. - BALBOA C20-03, 23, 09SX FLOW LINE RELEASE

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	08/12/16	4732.77	9.52	6.14	ND	ND	4726.63
BH02	08/12/16	4732.90	NM	6.96	6.17	0.79	4726.53
BH03	08/12/16	4733.02	NM	7.46	6.41	1.05	4726.35
BH04	08/12/16	4733.39	NM	7.14	6.70	0.44	4726.58
BH05	08/12/16	4732.68	9.42	5.75	ND	ND	4726.93
BH06	08/12/16	4733.06	9.49	5.97	ND	ND	4727.09
BH07	08/12/16	4732.95	NM	6.95	5.85	1.10	4726.83
BH08	08/12/16	4732.79	9.80	6.48	ND	ND	4726.31
BH09	08/12/16	4732.90	9.94	6.80	ND	ND	4726.10
BH10	08/12/16	4733.61	NM	7.36	7.17	0.19	4726.39
BH11	08/12/16	4733.08	9.87	5.99	ND	ND	4727.09
BH12	08/12/16	4734.34	9.94	7.03	ND	ND	4727.31
BH13	08/12/16	4733.08	9.74	6.15	ND	ND	4726.93
BH14	08/12/16	4733.44	9.75	7.24	ND	ND	4726.20
BH15	08/12/16	4732.80	9.88	7.04	ND	ND	4725.76
BH16	08/12/16	4733.25	9.70	7.14	ND	ND	4726.11

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

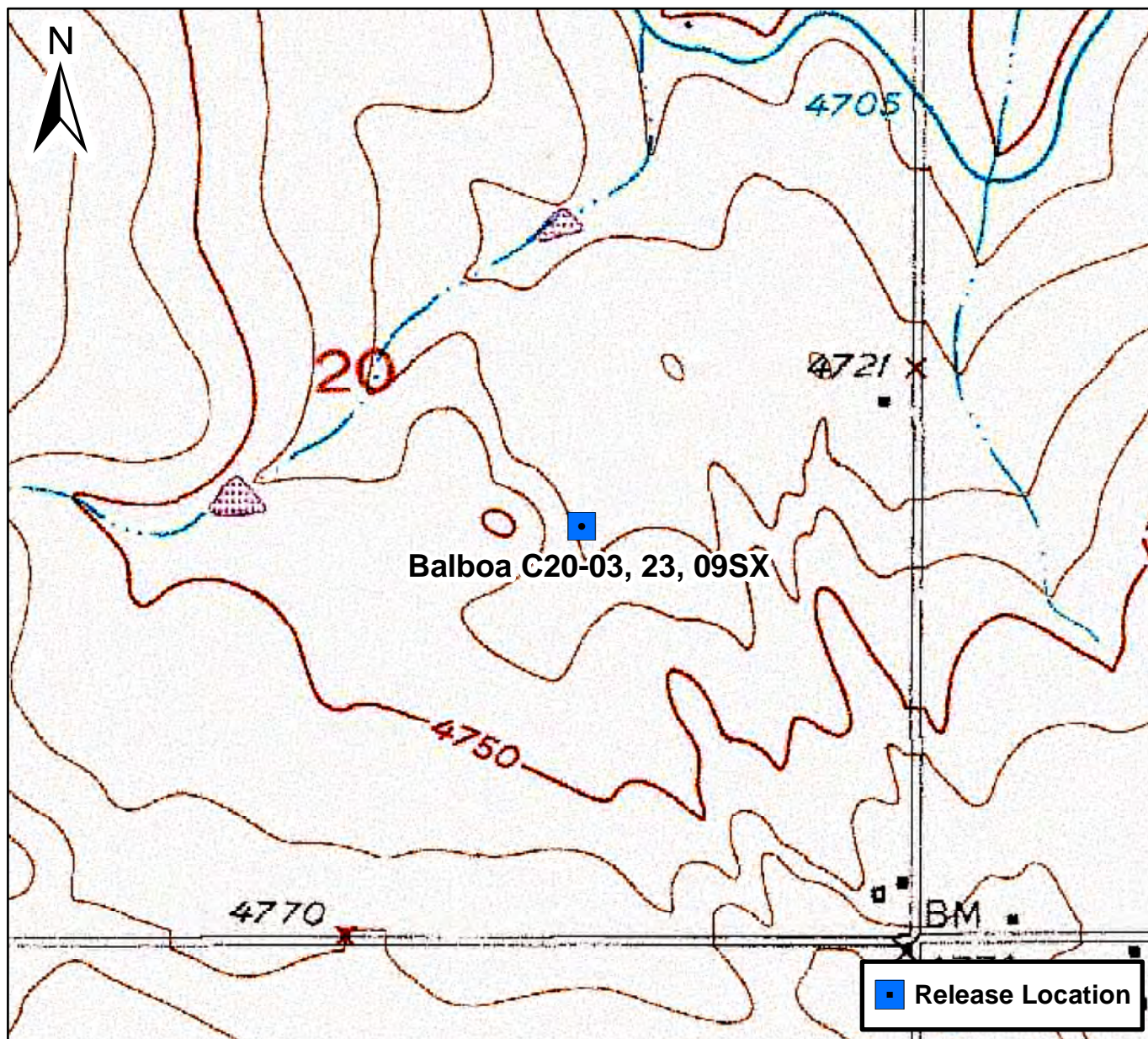
NM = Not measured

ND = No LNAPL detected

* 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



0 750 1,500 Feet

Figure 1

Site Location Map
Balboa C20-03, 23, 09SX
NWSE S20 T4N R64W
Weld County, Colorado





PROJECT NO:
 DRAWN BY: ESS
 DATE:09/16/2016

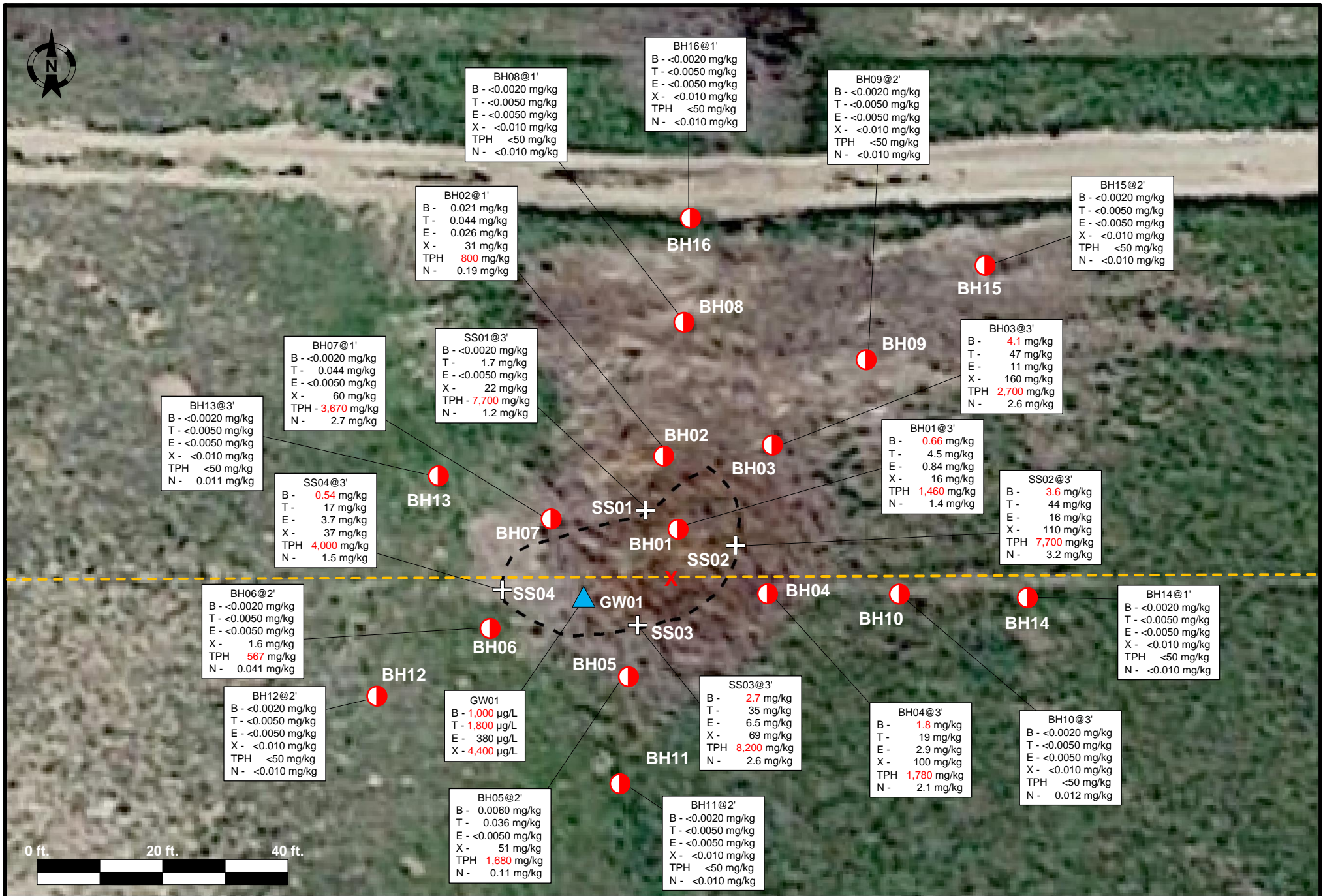


Facility
 Noble Energy
 Balboa C20-03, 23, 09SX
 Weld County, CO

LEGEND:
 - - - Excavation Extent
 (Surveyed Via Trimble Unit)
 - - - Noble Flow Line

X Approximate Release Location
 Soil Boring and Monitoring Well Location

Site Overview Map
 Figure 2



PROJECT NO:
DRAWN BY: ESS
DATE:09/16/2016



Facility
Noble Energy
Balboa C20-03, 23, 09SX
Weld County, CO

LEGEND:
-- Excavation Extent (Surveyed Via Trimble Unit)
-- Noble Flow Line
▲ Excavation Groundwater Sample
+ Excavation Soil Sample Location

X Approximate Release Location
● Borehole Soil Sample Location
mg/kg Milligrams Per Kilogram
µg/L Micrograms Per Liter

B - Benzene
T - Toluene
E - Ethylbenzene
X - Total Xylenes
TPH - Total Petroleum Hydrocarbons
N - Naphthalene

Borehole Soil and Excavation Soil and Groundwater Analytical Results Map
Figure 3



PROJECT NO:

DRAWN BY: ESS

DATE:09/16/2016



Facility
Noble Energy
Balboa C20-03, 23, 09SX
Weld County, CO

LEGEND:

--- Excavation Extent
(Surveyed Via Trimble Unit)

--- Noble Flow Line



Approximate Release Location

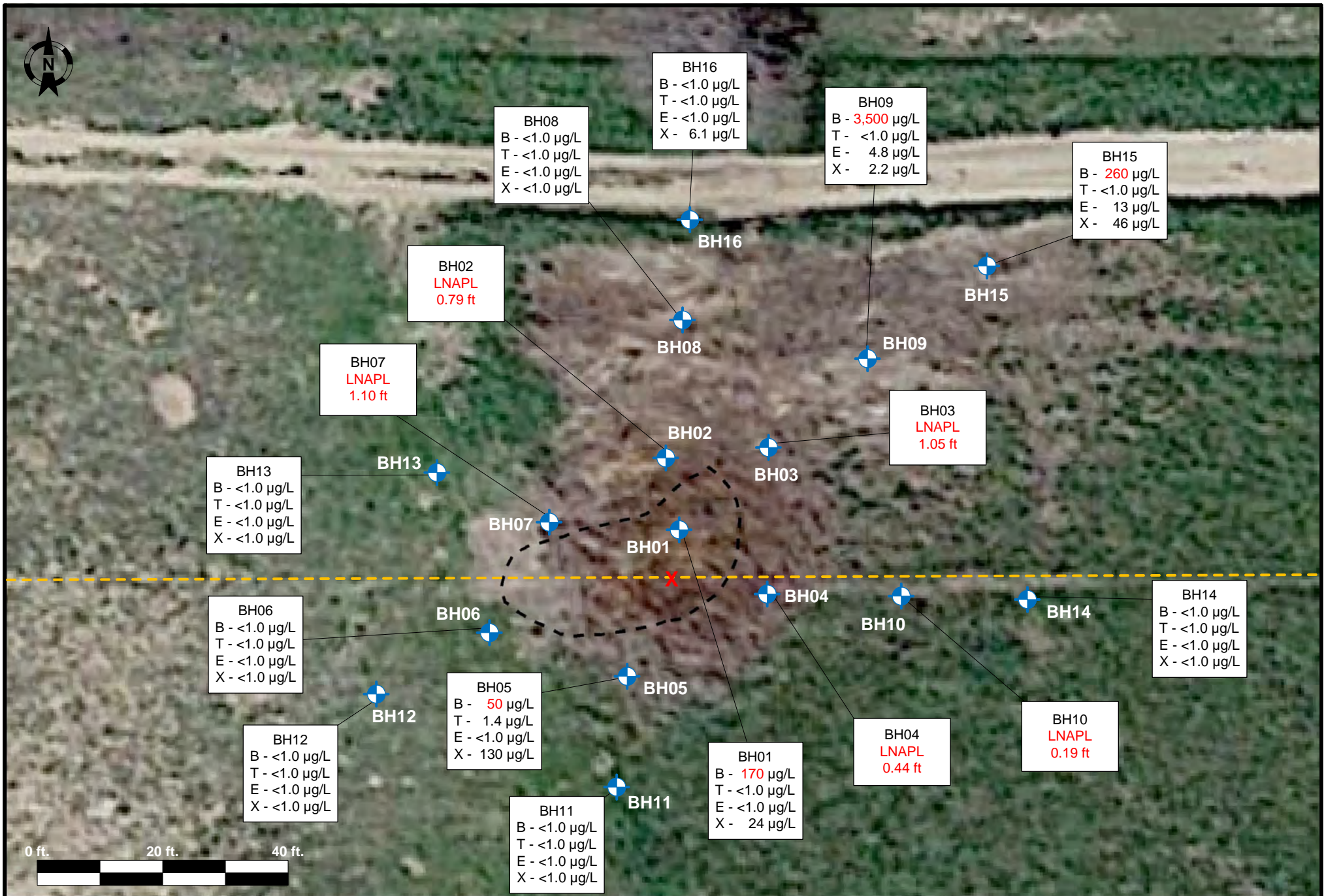


Groundwater Monitoring Well

— Groundwater Elevation Contour
4726.63 Measured Groundwater Elevation
→ Flow Direction

Groundwater
Potentiometric Surface
Contour Map
(08/12/16)

Figure 4



PROJECT NO:

DRAWN BY: ESS

DATE: 09/16/2016



Facility
Noble Energy
Balboa C20-03, 23, 09SX
Weld County, CO

LEGEND:

--- Excavation Extent
(Surveyed Via Trimble Unit)

--- Noble Flow Line



Monitoring Well Location



Approximate Release Location

µg/L

Micrograms Per Liter

B - Benzene
T - Toluene
E - Ethylbenzene
X - Total Xylenes

Groundwater Analytical
Results Map
(08/12/16)

Figure 5

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 31, 2016

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Noble - Balboa C20-03, 23, 9SX

Enclosed are the results of analyses for samples received by Summit Scientific on 07/29/16 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/31/16 13:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@3'	1607239-01	Soil	07/29/16 08:30	07/29/16 18:00
SS02@3'	1607239-02	Soil	07/29/16 08:32	07/29/16 18:00
SS03@3'	1607239-03	Soil	07/29/16 08:34	07/29/16 18:00
SS04@3'	1607239-04	Soil	07/29/16 08:36	07/29/16 18:00
GW01	1607239-05	Water	07/29/16 12:40	07/29/16 18:00

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/31/16 13:03

Summit Scientific 1607239

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

Page 1 of 1

Client: Tasman Noble

Address:

City/State/Zip: _____

Phone: 720-616-8383

Fax:


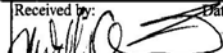
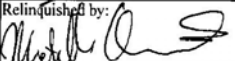
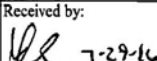
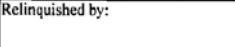
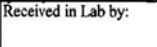
Sampler Name: Jacob Whittenor

Project Manager: Brandon Bruns

E-Mail: bbrens@tasman-geo.co.uk

Project Name: Balboa C20-03, 23, 29SX

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)	SR60 BTEX	GBTEX-VI 8260	TPH-DRO, 640, 205			
5501 @ 3'	7-29-16	0830	1			X								X	X		
5502 @ 3'	7-29-16	0832	1			X			X					X	X		
5503 @ 3'	7-29-16	0834	1			X			X					X	X		
5504 @ 3'	7-29-16	0836	1			X			X					X	X		
6W01	7-29-16	1240	3			X		X					X				
Relinquished by: 	Date/Time: 7-29-16	Received by: 	Date/Time: 7-29-16	Turn Around Time (Check)				Notes:									
				Same Day <input checked="" type="checkbox"/> 72 Hours				<div> <div>Standard</div> <div><input type="checkbox"/></div> </div>									
Relinquished by: 	Date/Time: 7-29-16	Received by: 	Date/Time: 7-29-16	24 Hours <input type="checkbox"/>													
				48 Hours <input type="checkbox"/>													
Relinquished by: 	Date/Time: 7-29-16	Received in Lab by: 	Date/Time: 7-29-16	Sample Integrity: 2.7				on ice									
				Temperature Upon Receipt: <input type="checkbox"/> Yes <input type="checkbox"/> No													

www.s2scientific.com

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/31/16 13:03

Sample Receipt Checklist

S2 Work Order: 1607239

Client: Tasman Client Project ID: Noble - Balboa C20-03, 23, 9SX

Shipped Via: (UPS, FedEx, Hand Delivered, Pick-up, etc.) Airbill #: _____

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

Cooler ID					
Temp (°C)	<u>10</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Brandon Bruns
Custodian Printed Name

BB
Signature or Initials of Custodian

7-29-16
Date/Time



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/31/16 13:03

SS01@3'
1607239-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/29/16 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	3100	50	mg/kg	1	1607308	07/29/16	07/30/16	8015M	

Date Sampled: 07/29/16 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		127 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/29/16 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	1.2	1.0	mg/kg	100	1607309	07/29/16	07/30/16	EPA 8260B	
Benzene	ND	0.0020	"	1	"	"	"	"	
Toluene	1.7	0.50	"	100	"	"	"	"	
Ethylbenzene	ND	0.0050	"	1	"	"	"	"	
Xylenes (total)	22	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	4600	50	"	"	"	"	"	"	

Date Sampled: 07/29/16 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		87.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		122 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/31/16 13:03

SS02@3'
1607239-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/29/16 08:32

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	2700	50	mg/kg	1	1607308	07/29/16	07/30/16	8015M	

Date Sampled: 07/29/16 08:32

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		125 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/29/16 08:32

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	3.2	1.0	mg/kg	100	1607309	07/29/16	07/30/16	EPA 8260B	
Benzene	3.6	0.20	"	"	"	"	"	"	
Toluene	44	0.50	"	"	"	"	"	"	
Ethylbenzene	16	0.50	"	"	"	"	"	"	
Xylenes (total)	110	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	5000	50	"	"	"	"	"	"	

Date Sampled: 07/29/16 08:32

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		79.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		126 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/31/16 13:03

SS03@3'
1607239-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/29/16 08:34

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	2800	50	mg/kg	1	1607308	07/29/16	07/30/16	8015M	

Date Sampled: 07/29/16 08:34

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		145 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/29/16 08:34

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	2.6	1.0	mg/kg	100	1607309	07/29/16	07/30/16	EPA 8260B	
Benzene	2.7	0.20	"	"	"	"	"	"	
Toluene	35	0.50	"	"	"	"	"	"	
Ethylbenzene	6.5	0.50	"	"	"	"	"	"	
Xylenes (total)	69	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	5400	50	"	"	"	"	"	"	

Date Sampled: 07/29/16 08:34

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		122 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/31/16 13:03

SS04@3'
1607239-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/29/16 08:36

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	900	50	mg/kg	1	1607308	07/29/16	07/30/16	8015M	

Date Sampled: 07/29/16 08:36

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/29/16 08:36

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	1.5	1.0	mg/kg	100	1607309	07/29/16	07/30/16	EPA 8260B	
Benzene	0.54	0.20	"	"	"	"	"	"	
Toluene	17	0.50	"	"	"	"	"	"	
Ethylbenzene	3.7	0.50	"	"	"	"	"	"	
Xylenes (total)	37	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3100	50	"	"	"	"	"	"	

Date Sampled: 07/29/16 08:36

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.2 %	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 Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/31/16 13:03

GW01
1607239-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/16 12:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	1000	100		ug/l	100	1607307	07/29/16	07/29/16	EPA 8260B	
Toluene	1800	100		"	"	"	"	"	"	
Ethylbenzene	380	100		"	"	"	"	"	"	
Xylenes (total)	4400	100		"	"	"	"	"	"	

Date Sampled: **07/29/16 12:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.8 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.0 %		45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/31/16 13:03

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1607308 - EPA 3550A

Blank (1607308-BLK1)

Prepared & Analyzed: 07/29/16

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.2		"	12.5		97.2	30-150			

LCS (1607308-BS1)

Prepared & Analyzed: 07/29/16

C10-C28 (DRO)	438	50	mg/kg	499		87.7	73-134			
Surrogate: o-Terphenyl	12.4		"	12.5		99.2	30-150			

Matrix Spike (1607308-MS1)

Source: 1607237-01

Prepared & Analyzed: 07/29/16

C10-C28 (DRO)	396	50	mg/kg	456	15.5	83.5	50-148			
Surrogate: o-Terphenyl	11.2		"	11.4		98.1	30-150			

Matrix Spike Dup (1607308-MSD1)

Source: 1607237-01

Prepared & Analyzed: 07/29/16

C10-C28 (DRO)	402	50	mg/kg	465	15.5	83.1	50-148	1.45	20	
Surrogate: o-Terphenyl	11.4		"	11.7		97.8	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 Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/31/16 13:03

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 1607307 - EPA 5030 Water MS

Blank (1607307-BLK1)

Prepared & Analyzed: 07/29/16

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.3		103	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		97.0	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.0	45-146			

LCS (1607307-BS1)

Prepared & Analyzed: 07/29/16

Benzene	40.2	1.0	ug/l	33.3		121	51-132			
Toluene	41.9	1.0	"	33.3		126	51-138			
Ethylbenzene	42.8	1.0	"	33.1		130	58-146			
m,p-Xylene	88.5	2.0	"	66.5		133	57-144			
o-Xylene	43.6	1.0	"	32.7		134	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.3		108	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.3	45-149			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.3	45-146			

Matrix Spike (1607307-MS1)

Source: 1607207-01

Prepared & Analyzed: 07/29/16

Benzene	42.1	1.0	ug/l	33.3	ND	126	34-141			
Toluene	44.9	1.0	"	33.3	ND	135	27-151			
Ethylbenzene	45.2	1.0	"	33.1	ND	137	29-160			
m,p-Xylene	94.6	2.0	"	66.5	ND	142	20-166			
o-Xylene	45.5	1.0	"	32.7	ND	139	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.3		111	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.2	45-146			

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 Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/31/16 13:03

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 1607307 - EPA 5030 Water MS

Matrix Spike Dup (1607307-MSD1)				Source: 1607207-01		Prepared & Analyzed: 07/29/16				
Benzene	41.6	1.0	ug/l	33.3	ND	125	34-141	1.27	32	
Toluene	44.3	1.0	"	33.3	ND	133	27-151	1.39	25	
Ethylbenzene	46.1	1.0	"	33.1	ND	139	29-160	2.02	50	
m,p-Xylene	94.7	2.0	"	66.5	ND	142	20-166	0.148	36	
o-Xylene	46.8	1.0	"	32.7	ND	143	33-159	2.75	26	
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.3		111	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.6	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.2	45-146			

Batch 1607309 - EPA 5030 Soil MS

Blank (1607309-BLK1)				Prepared & Analyzed: 07/29/16						
Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0357		"	0.0400		89.2	23-173			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0374		"	0.0400		93.6	21-167			

LCS (1607309-BS1)				Prepared & Analyzed: 07/29/16						
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0886	0.0020	"	0.100		88.6	58-130			
Toluene	0.103	0.0050	"	0.100		103	61-134			
Ethylbenzene	0.110	0.0050	"	0.0992		110	74-139			
m,p-Xylene	0.222	0.010	"	0.200		111	73-137			
o-Xylene	0.104	0.0050	"	0.0980		106	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0366		"	0.0400		91.5	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	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 Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/31/16 13:03

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 1607309 - EPA 5030 Soil MS

Matrix Spike (1607309-MS1)

Source: 1607237-01

Prepared & Analyzed: 07/29/16

Naphthalene	ND	0.010	mg/kg		0.00345		10-158			
Benzene	0.0845	0.0020	"	0.0921	ND	91.8	30-131			
Toluene	0.0982	0.0050	"	0.0921	0.00370	103	30-134			
Ethylbenzene	0.101	0.0050	"	0.0913	0.00342	107	22-153			
m,p-Xylene	0.211	0.010	"	0.184	0.0459	89.6	10-159			
o-Xylene	0.102	0.0050	"	0.0902	0.00844	103	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0376		"	0.0368		102	23-173			
Surrogate: Toluene-d8	0.0361		"	0.0368		98.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0368		103	21-167			

Matrix Spike Dup (1607309-MSD1)

Source: 1607237-01

Prepared & Analyzed: 07/29/16

Naphthalene	0.00332	0.010	mg/kg		0.00345		10-158		42	
Benzene	0.0835	0.0020	"	0.0929	ND	89.9	30-131	1.19	34	
Toluene	0.0996	0.0050	"	0.0929	0.00370	103	30-134	1.35	30	
Ethylbenzene	0.105	0.0050	"	0.0922	0.00342	110	22-153	3.69	24	
m,p-Xylene	0.221	0.010	"	0.186	0.0459	94.5	10-159	4.90	68	
o-Xylene	0.109	0.0050	"	0.0911	0.00844	110	31-151	6.59	38	
Surrogate: 1,2-Dichloroethane-d4	0.0364		"	0.0372		97.8	23-173			
Surrogate: Toluene-d8	0.0359		"	0.0372		96.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0372		105	21-167			

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Balboa C20-03, 23, 9SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/31/16 13:03

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

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.

A handwritten signature in black ink, appearing to be 'MSM'.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 16, 2016

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Balboa C20-03,23,09SX

Enclosed are the results of analyses for samples received by Summit Scientific on 08/11/16 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@3'	1608095-01	Soil	08/11/16 09:10	08/11/16 17:30
BH02@1'	1608095-02	Soil	08/11/16 09:25	08/11/16 17:30
BH03@3'	1608095-03	Soil	08/11/16 09:50	08/11/16 17:30
BH04@3'	1608095-04	Soil	08/11/16 10:10	08/11/16 17:30
BH05@2'	1608095-05	Soil	08/11/16 10:25	08/11/16 17:30
BH06@2'	1608095-06	Soil	08/11/16 10:40	08/11/16 17:30
BH07@1'	1608095-07	Soil	08/11/16 10:50	08/11/16 17:30
BH08@1'	1608095-08	Soil	08/11/16 11:50	08/11/16 17:30
BH09@2'	1608095-09	Soil	08/11/16 12:10	08/11/16 17:30
BH10@3'	1608095-10	Soil	08/11/16 12:25	08/11/16 17:30
BH11@2'	1608095-11	Soil	08/11/16 12:40	08/11/16 17:30
BH12@2'	1608095-12	Soil	08/11/16 12:55	08/11/16 17:30
BH13@3'	1608095-13	Soil	08/11/16 13:10	08/11/16 17:30
BH14@1'	1608095-14	Soil	08/11/16 14:00	08/11/16 17:30
BH15@2'	1608095-15	Soil	08/11/16 14:40	08/11/16 17:30
BH16@1'	1608095-16	Soil	08/11/16 15:00	08/11/16 17:30

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

Summit Scientific

1608095.1

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

Client: Noble/Tasman
Address:
City/State/Zip:
Phone: Fax:
Sampler Name: Eric Siegel

Page 1 of 2
Project Manager: Brandon Bruns, Invoice: Jacob Enns
E-Mail:
Project Name: Balboa C20-03,23,09SX
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
BH01e3'	8/11/16	9:10	1			X		X							
BH02e1'		9:25													
BH03e3'		9:50													
BH04e3'		10:10													
BH05e2'		10:25													
BH06e2'		10:40													
BH07e1'		10:50													
BH08e1'		11:50													
BH09e2'		12:10													
BH10e3'		12:25													
Relinquished by: E.A. Lind				Date/Time: 8/11/16 17:30	Received by: [Signature]				Date/Time: 8-11-16 17:30	Turn Around Time (Check)				Notes:	
Relinquished by: [Signature]				Date/Time: 8-11-16 18:20	Received by: [Signature]				Date/Time: 8-11-16 18:20	Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input checked="" type="checkbox"/> Standard <input type="checkbox"/>					
Relinquished by:				Date/Time:	Received in Lab by:				Date/Time:	Sample Integrity: Temperature Upon Receipt: 1.7					
										Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>					

www.s2scientific.com

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

Summit Scientific

1608095.2

741 Corporate Circle Suite 1 Golden, Colorado 80401
303-277-9310 303-374-5933 Fax

Client: _____ Noble/Tasman
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____
Sampler Name: Eric Siesel

Page 2 of 2

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail:
Project Name: Balboa CZO-03.23 09 SX
Project Number:

[illegible]

www.s2scientific.com

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

Sample Receipt Checklist

S2 Work Order: 1608095

Client: Tasman

Client Project ID: Balboa C20-03,23,095X

Shipped Via: H.O. on ice
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

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

Cooler ID					
Temp (°C)	<u>1.7</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			<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 checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Murp.
Custodian Printed Name

MA 8-11-16
Signature or Initials of Custodian

18:20
Date/Time



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

BH01@3'
1608095-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 09:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	660	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 09:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 09:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	1.4	1.0	mg/kg	100	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	0.66	0.20	"	"	"	"	"	"	
Toluene	4.5	0.50	"	"	"	"	"	"	
Ethylbenzene	0.84	0.50	"	"	"	"	"	"	
Xylenes (total)	16	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	800	500	"	10	"	"	"	"	

Date Sampled: 08/11/16 09:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH02@1'
1608095-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	650	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 09:25**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.19	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	0.021	0.0020	"	"	"	"	"	"	
Toluene	0.044	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.026	0.0050	"	"	"	"	"	"	
Xylenes (total)	31	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	150	50	"	1	"	"	"	"	

Date Sampled: **08/11/16 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.4 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		92.2 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		100 %	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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH03@3'
1608095-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	700	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	2.6	1.0	mg/kg	100	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	4.1	0.20	"	"	"	"	"	"	
Toluene	47	0.50	"	"	"	"	"	"	
Ethylbenzene	11	0.50	"	"	"	"	"	"	
Xylenes (total)	160	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2000	500	"	10	"	"	"	"	

Date Sampled: **08/11/16 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		16.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		126 %	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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

BH04@3'
1608095-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	380	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	2.1	1.0	mg/kg	100	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	1.8	0.20	"	"	"	"	"	"	
Toluene	19	0.50	"	"	"	"	"	"	
Ethylbenzene	2.9	0.50	"	"	"	"	"	"	
Xylenes (total)	100	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1400	500	"	10	"	"	"	"	

Date Sampled: 08/11/16 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		86.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH05@2'
1608095-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	280	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 10:25**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.11	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	0.0060	0.0020	"	"	"	"	"	"	
Toluene	0.036	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	51	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	1400	500	"	10	"	"	"	"	

Date Sampled: **08/11/16 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.5 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		87.9 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		113 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH06@2'
1608095-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 10:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	490	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 10:40

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 10:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.041	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.6	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	77	50	"	"	"	"	"	"	

Date Sampled: 08/11/16 10:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH07@1'
1608095-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	770	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 10:50**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	2.7	1.0	mg/kg	100	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	1	"	"	"	"	
Toluene	0.044	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	60	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	2900	500	"	10	"	"	"	"	

Date Sampled: **08/11/16 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		96.2 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		90.1 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		139 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH08@1'
1608095-08 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		93.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/11/16 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		66.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.6 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH09@2'
1608095-09 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		94.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/11/16 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		101 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH10@3'
1608095-10 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.012	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 08/11/16 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.9 %	21-167		"	"	"	"	

Summit Scientific

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6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH11@2'
1608095-11 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.1 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/11/16 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.8 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH12@2'
1608095-12 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/11/16 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: **08/11/16 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		92.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/11/16 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/11/16 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.5 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

BH13@3'
1608095-13 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.011	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 08/11/16 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.7 %	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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH14@1'
1608095-14 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 08/11/16 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH15@2'
1608095-15 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 14:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 14:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 14:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 08/11/16 14:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.8 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/16/16 12:00

BH16@1'
1608095-16 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/11/16 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1608136	08/12/16	08/13/16	8015M	

Date Sampled: 08/11/16 15:00

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/11/16 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1608135	08/12/16	08/13/16	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 08/11/16 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.6 %	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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1608136 - EPA 3550A

Blank (1608136-BLK1)

Prepared & Analyzed: 08/12/16

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.4		"	12.5		99.4	30-150			

LCS (1608136-BS1)

Prepared & Analyzed: 08/12/16

C10-C28 (DRO)	412	50	mg/kg	499		82.5	73-134			
Surrogate: o-Terphenyl	12.0		"	12.5		95.7	30-150			

Matrix Spike (1608136-MS1)

Source: 1608093-01

Prepared & Analyzed: 08/12/16

C10-C28 (DRO)	422	50	mg/kg	499	9.68	82.7	50-148			
Surrogate: o-Terphenyl	12.2		"	12.5		97.3	30-150			

Matrix Spike Dup (1608136-MSD1)

Source: 1608093-01

Prepared & Analyzed: 08/12/16

C10-C28 (DRO)	426	50	mg/kg	499	9.68	83.4	50-148	0.862	20	
Surrogate: o-Terphenyl	11.9		"	12.5		95.3	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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

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 1608135 - EPA 5030 Soil MS

Blank (1608135-BLK1)

Prepared: 08/12/16 Analyzed: 08/13/16

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>21-167</i>			

LCS (1608135-BS1)

Prepared: 08/12/16 Analyzed: 08/13/16

Naphthalene	0.0119	0.010	mg/kg				66-138			
Benzene	0.0818	0.0020	"	0.100		81.8	58-130			
Toluene	0.0867	0.0050	"	0.100		86.7	61-134			
Ethylbenzene	0.0848	0.0050	"	0.0992		85.4	74-139			
m,p-Xylene	0.170	0.010	"	0.200		85.1	73-137			
o-Xylene	0.0903	0.0050	"	0.0980		92.1	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0413</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0374</i>		<i>"</i>	<i>0.0400</i>		<i>93.6</i>	<i>21-167</i>			

Matrix Spike (1608135-MS1)

Source: 1608093-01

Prepared: 08/12/16 Analyzed: 08/13/16

Naphthalene	0.0125	0.010	mg/kg		0.0127		10-158			
Benzene	0.0732	0.0020	"	0.100	0.0103	63.0	30-131			
Toluene	0.0492	0.0050	"	0.100	0.00948	39.7	30-134			
Ethylbenzene	0.0398	0.0050	"	0.0992	0.0123	27.7	22-153			
m,p-Xylene	0.0806	0.010	"	0.200	0.0131	33.8	10-159			
o-Xylene	0.0800	0.0050	"	0.0980	0.0118	69.6	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>98.1</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0362</i>		<i>"</i>	<i>0.0400</i>		<i>90.4</i>	<i>21-167</i>			

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

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 1608135 - EPA 5030 Soil MS

Matrix Spike Dup (1608135-MSD1)		Source: 1608093-01			Prepared: 08/12/16		Analyzed: 08/13/16			
Naphthalene	0.0130	0.010	mg/kg		0.0127		10-158	3.77	42	
Benzene	0.0704	0.0020	"	0.100	0.0103	60.1	30-131	3.97	34	
Toluene	0.0562	0.0050	"	0.100	0.00948	46.8	30-134	13.4	30	
Ethylbenzene	0.0575	0.0050	"	0.0992	0.0123	45.5	22-153	36.3	24	S-02
m,p-Xylene	0.100	0.010	"	0.200	0.0131	43.6	10-159	21.6	68	
o-Xylene	0.0820	0.0050	"	0.0980	0.0118	71.6	31-151	2.41	38	
Surrogate: 1,2-Dichloroethane-d4	0.0405		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0393		"	0.0400		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0335		"	0.0400		83.7	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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/16/16 12:00

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.

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

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.

A handwritten signature in black ink, appearing to be 'MSM'.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 18, 2016

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Balboa C20-03,23,09SX

Enclosed are the results of analyses for samples received by Summit Scientific on 08/12/16 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1608110-01	Water	08/12/16 10:15	08/12/16 17:00
BH05	1608110-02	Water	08/12/16 10:30	08/12/16 17:00
BH06	1608110-03	Water	08/12/16 10:45	08/12/16 17:00
BH08	1608110-04	Water	08/12/16 10:55	08/12/16 17:00
BH09	1608110-05	Water	08/12/16 11:00	08/12/16 17:00
BH11	1608110-06	Water	08/12/16 11:10	08/12/16 17:00
BH12	1608110-07	Water	08/12/16 11:20	08/12/16 17:00
BH13	1608110-08	Water	08/12/16 11:35	08/12/16 17:00
BH14	1608110-09	Water	08/12/16 11:45	08/12/16 17:00
BH15	1608110-10	Water	08/12/16 11:50	08/12/16 17:00
BH16	1608110-11	Water	08/12/16 12:00	08/12/16 17:00

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/18/16 09:59

Summit Scientific 1608110.1

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

Client: Noble/Tasman Address: City/State/Zip: Phone: Fax: Sampler Name: Eric Siegel
Project Manager: Brandon Bruns, Invoice: Jacob Evans E-Mail: Project Name: Balboa C20-03,23,09SX Project Number:

Page 1 of 2

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
BH01	8/12/16	10:15	3												
BH05		10:30													
BH06		10:45													
BH08		10:55													
BH09		11:00													
BH11		11:10													
BH12		11:20													
BH13		11:35													
BH14		11:45													
BH15		11:50													
Relinquished by: <i>Eric Siegel</i> Date/Time: 8/12/16 1700				Received by: <i>Brandon Bruns</i> Date/Time: 8/12/16 1700				Turn Around Time (Check)				Notes:			
Relinquished by: <i>Brandon Bruns</i> Date/Time: 8/12/16 1720				Received by: <i>Kalvin McQuinn</i> Date/Time: 8/12/16 1730				Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 72 Hours <input checked="" type="checkbox"/> Standard				on ice			
Relinquished by: Date/Time:				Received in Lab by: Date/Time:				Sample Integrity: Temperature Upon Receipt: 4.7°C							
								Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							

www.summitscientific.com

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/18/16 09:59

Summit Scientific

1608110.2

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

Page 2 of 2

Client: _____ Noble/Tasman
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____
Sampler Name: Erz Siegel

Project Manager: Brandon Bruns, Invoice: Jacob Enns
E-Mail: _____
Project Name: Balboa C20-03, 23, 09 SX
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
BH16	8/12/16	12:00	3			X		X				X				
<div style="display: flex; justify-content: space-between;"> <div> Relinquished by: <i>E.A. Bird</i> Relinquished by: <i>MD</i> Relinquished by: </div> <div> Date/Time: 8/12/16 12:00 Date/Time: 8/12/16 17:00 Date/Time: 8/12/16 17:20 </div> <div> Received by: <i>MD</i> Received by: <i>Tracey Morgan</i> Received in Lab by: </div> <div> Date/Time: 8/12/16 17:00 Date/Time: 8/12/16 17:20 Date/Time: </div> <div> Turn Around Time (Check) Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> </div> <div> 72 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> </div> </div>																
Sample Integrity: Temperature Upon Receipt: 4.7°C Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																Notes: on ice

www.s2scientific.com

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/18/16 09:59

Sample Receipt Checklist

S2 Work Order: 1608110

Client: Noble/Tasman

Client Project ID: Balboa C20-03,23,09SX

Shipped Via: P/U

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

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

Cooler ID					
Temp (°C)	4.7				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°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 waived 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 short holding time analytes or samples with HTs 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 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.

Nakita
Custodian Printed Name

MB
Signature or Initials of Custodian

8/12/16 1200
Date/Time



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH01
1608110-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	170	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	24	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		85.4 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.7 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH05
1608110-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	50	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	1.4	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	130	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH06
1608110-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.9 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH08
1608110-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		93.2 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH09
1608110-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	3500	100	ug/l	100	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	4.8	1.0	"	"	"	"	"	"	
Xylenes (total)	2.2	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.7 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH11
1608110-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		100 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH12
1608110-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		102 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH13
1608110-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH14
1608110-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.9 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	45-146		"	"	"	"	

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH15
1608110-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	260	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	13	1.0	"	"	"	"	"	"	
Xylenes (total)	46	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		52.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/18/16 09:59

BH16
1608110-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/16 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1608167	08/16/16	08/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	6.1	1.0	"	"	"	"	"	"	

Date Sampled: **08/12/16 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.2 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		103 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/18/16 09:59

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 1608167 - EPA 5030 Water MS

Blank (1608167-BLK1)

Prepared & Analyzed: 08/16/16

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.3	102	37-154				
Surrogate: Toluene-d8	13.8		"	13.3	104	45-149				
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3	106	45-146				

LCS (1608167-BS1)

Prepared & Analyzed: 08/16/16

Benzene	26.0	1.0	ug/l	33.3	78.0	51-132				
Toluene	30.0	1.0	"	33.3	90.0	51-138				
Ethylbenzene	32.4	1.0	"	33.1	97.9	58-146				
m,p-Xylene	69.6	2.0	"	66.5	105	57-144				
o-Xylene	32.5	1.0	"	32.7	99.6	53-146				
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.3	107	37-154				
Surrogate: Toluene-d8	13.1		"	13.3	98.5	45-149				
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3	102	45-146				

Matrix Spike (1608167-MS1)

Source: 1608118-05

Prepared & Analyzed: 08/16/16

Benzene	26.7	1.0	ug/l	33.3	ND	80.1	34-141			
Toluene	30.3	1.0	"	33.3	ND	91.0	27-151			
Ethylbenzene	33.8	1.0	"	33.1	ND	102	29-160			
m,p-Xylene	74.8	2.0	"	66.5	ND	112	20-166			
o-Xylene	33.9	1.0	"	32.7	ND	104	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.3	112	37-154				
Surrogate: Toluene-d8	13.2		"	13.3	98.7	45-149				
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3	104	45-146				

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/18/16 09:59

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 1608167 - EPA 5030 Water MS

Matrix Spike Dup (1608167-MSD1)	Source: 1608118-05			Prepared & Analyzed: 08/16/16						
Benzene	27.1	1.0	ug/l	33.3	ND	81.4	34-141	1.64	32	
Toluene	30.9	1.0	"	33.3	ND	92.8	27-151	1.99	25	
Ethylbenzene	33.1	1.0	"	33.1	ND	100	29-160	2.15	50	
m,p-Xylene	71.1	2.0	"	66.5	ND	107	20-166	5.06	36	
o-Xylene	33.0	1.0	"	32.7	ND	101	33-159	2.63	26	
Surrogate: 1,2-Dichloroethane-d4	15.6		"	13.3		117	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	45-146			

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 Street
Denver CO, 80221

Project: Balboa C20-03,23,09SX

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/18/16 09:59

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

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.

A handwritten signature in black ink, appearing to be 'MSM'.



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 3.14

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH01

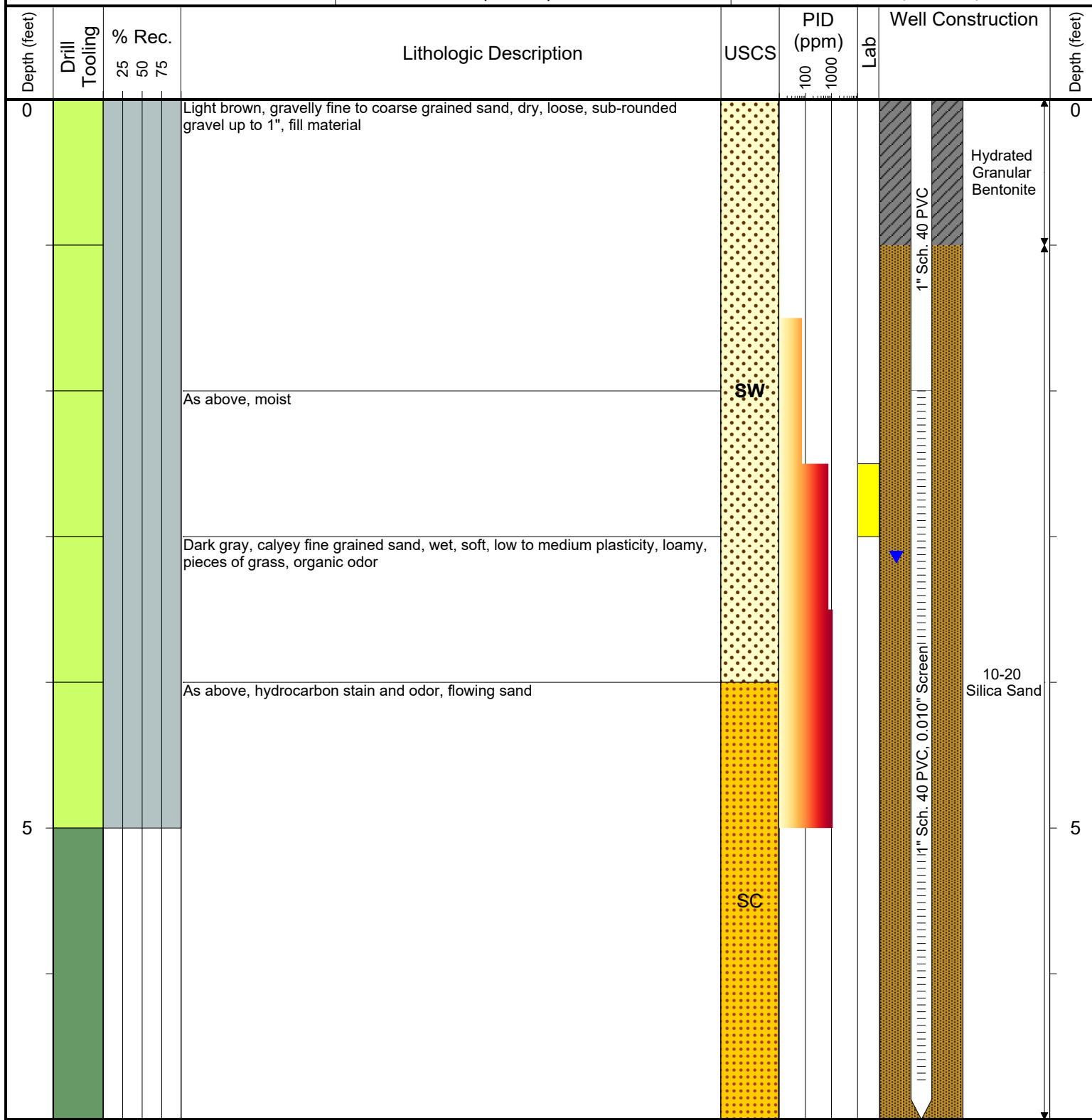
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295901868655

LONGITUDE (DEGREES): -104.57079198353

CASING ELEVATION (FT. AMSL): 4732.77

GROUND ELEVATION (FT. AMSL): 4730



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 3.96

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH02

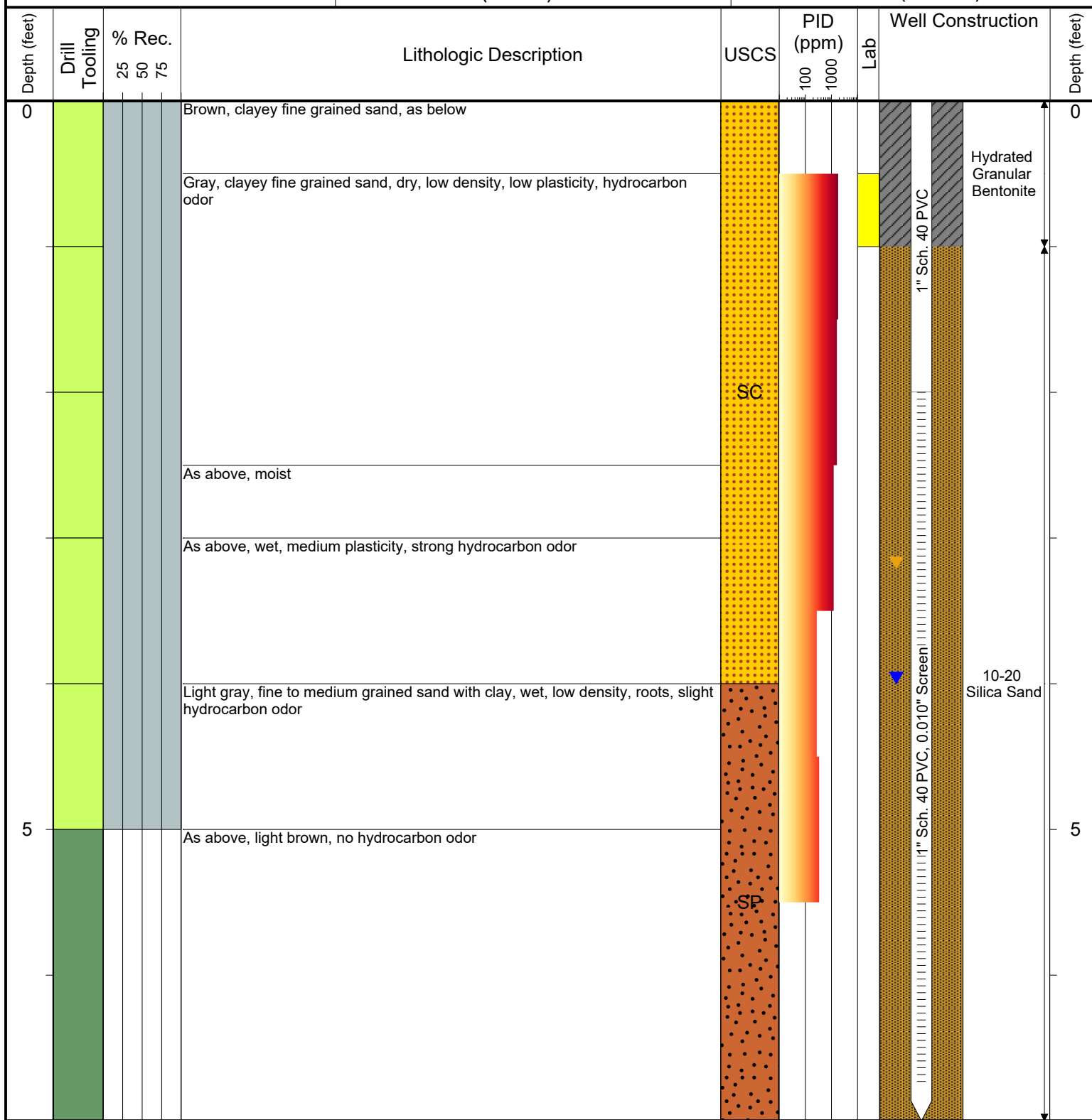
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295932958301

LONGITUDE (DEGREES): -104.57079820981

CASING ELEVATION (FT. AMSL): 4732.9

GROUND ELEVATION (FT. AMSL): 4729.94



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 4.46

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH03

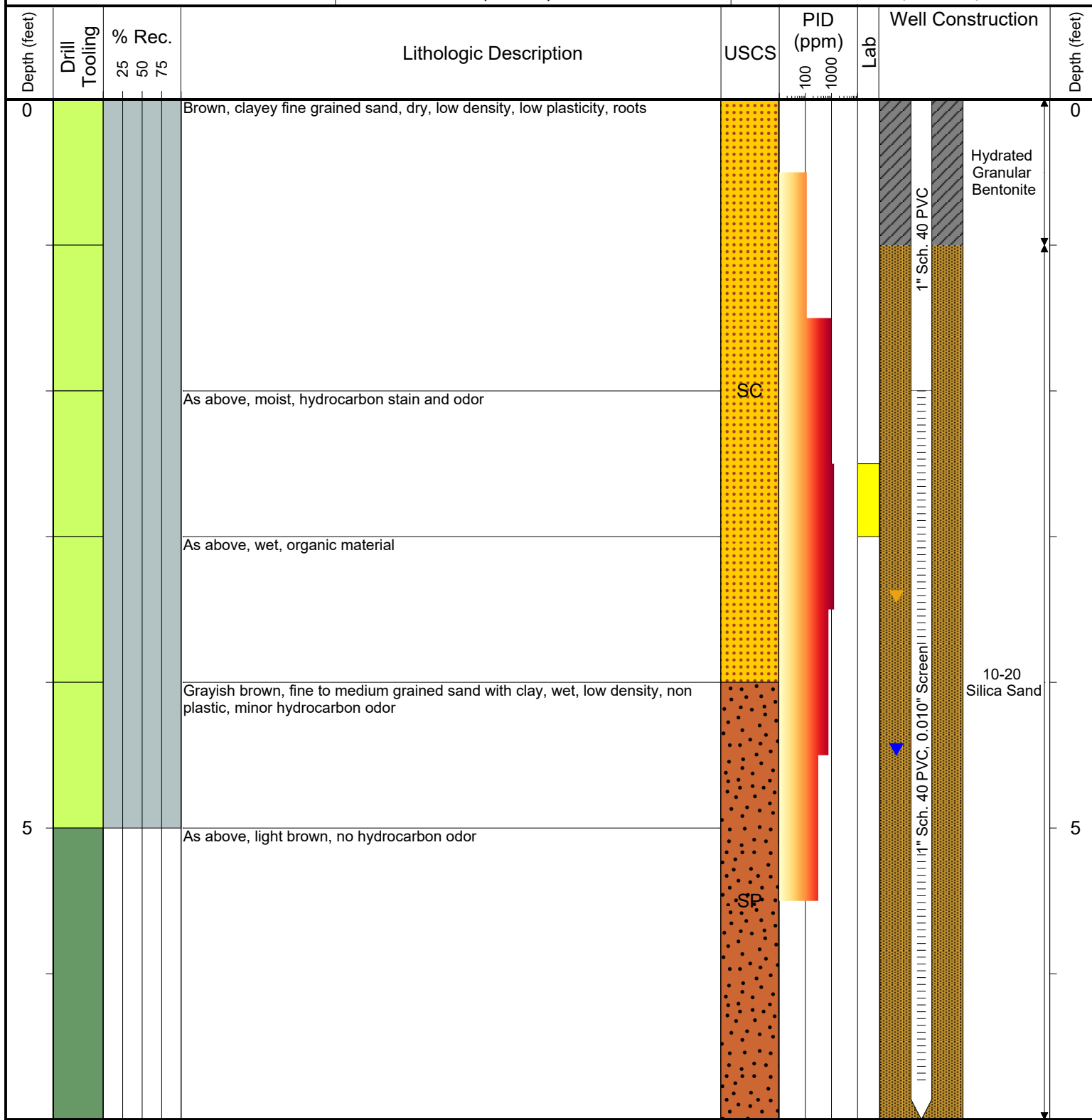
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295937000567

LONGITUDE (DEGREES): -104.57073973898

CASING ELEVATION (FT. AMSL): 4733.02

GROUND ELEVATION (FT. AMSL): 4729.89



Drilling / Sample Method:

Macro-Core

CME Continuous Core

Hand Auger

Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 4.14

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH04

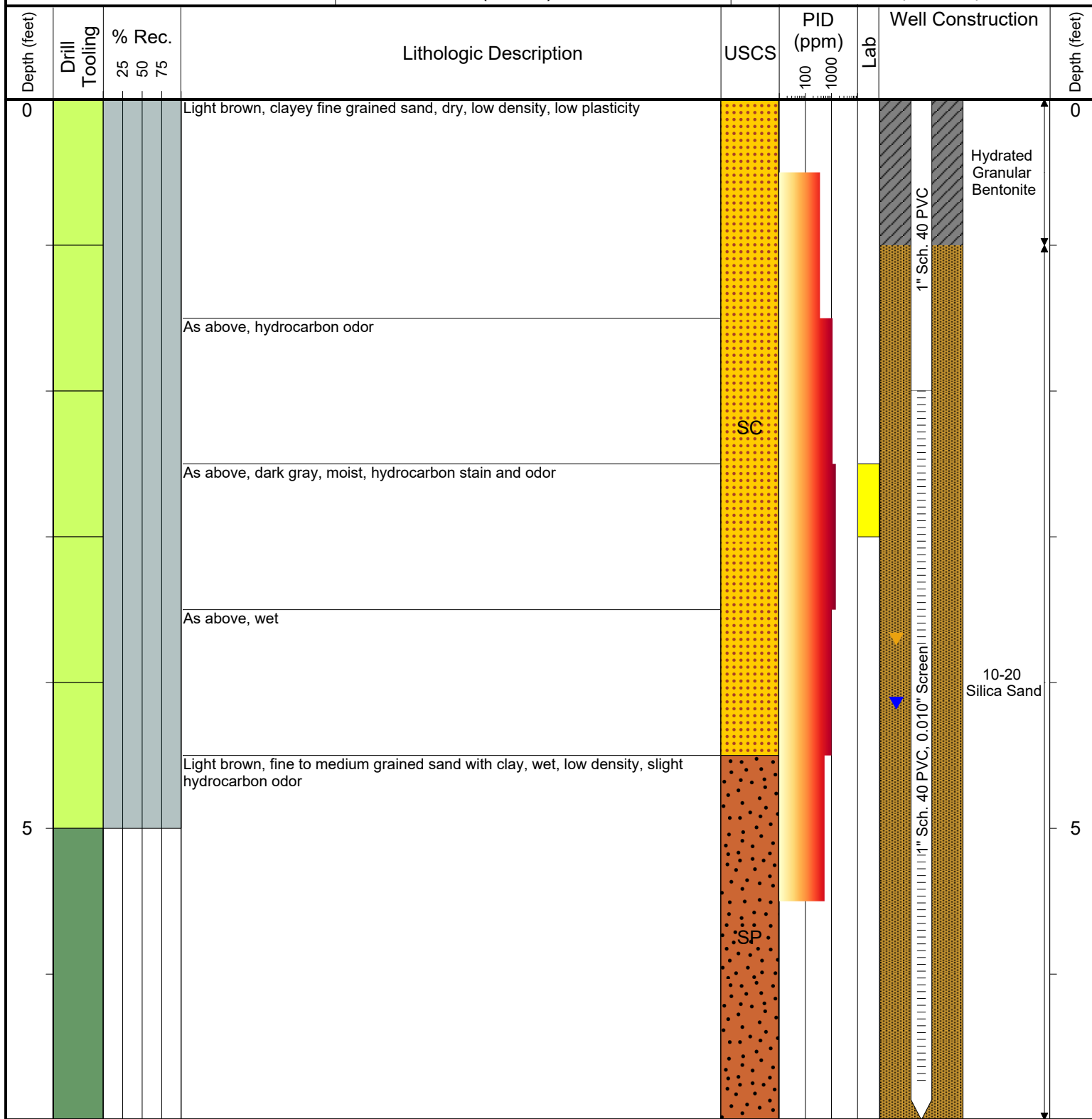
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295873909804

LONGITUDE (DEGREES): -104.57074022758

CASING ELEVATION (FT. AMSL): 4733.39

GROUND ELEVATION (FT. AMSL): 4730.24



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 8

DEPTH TO WATER (FT. BGS): 3.75

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH05

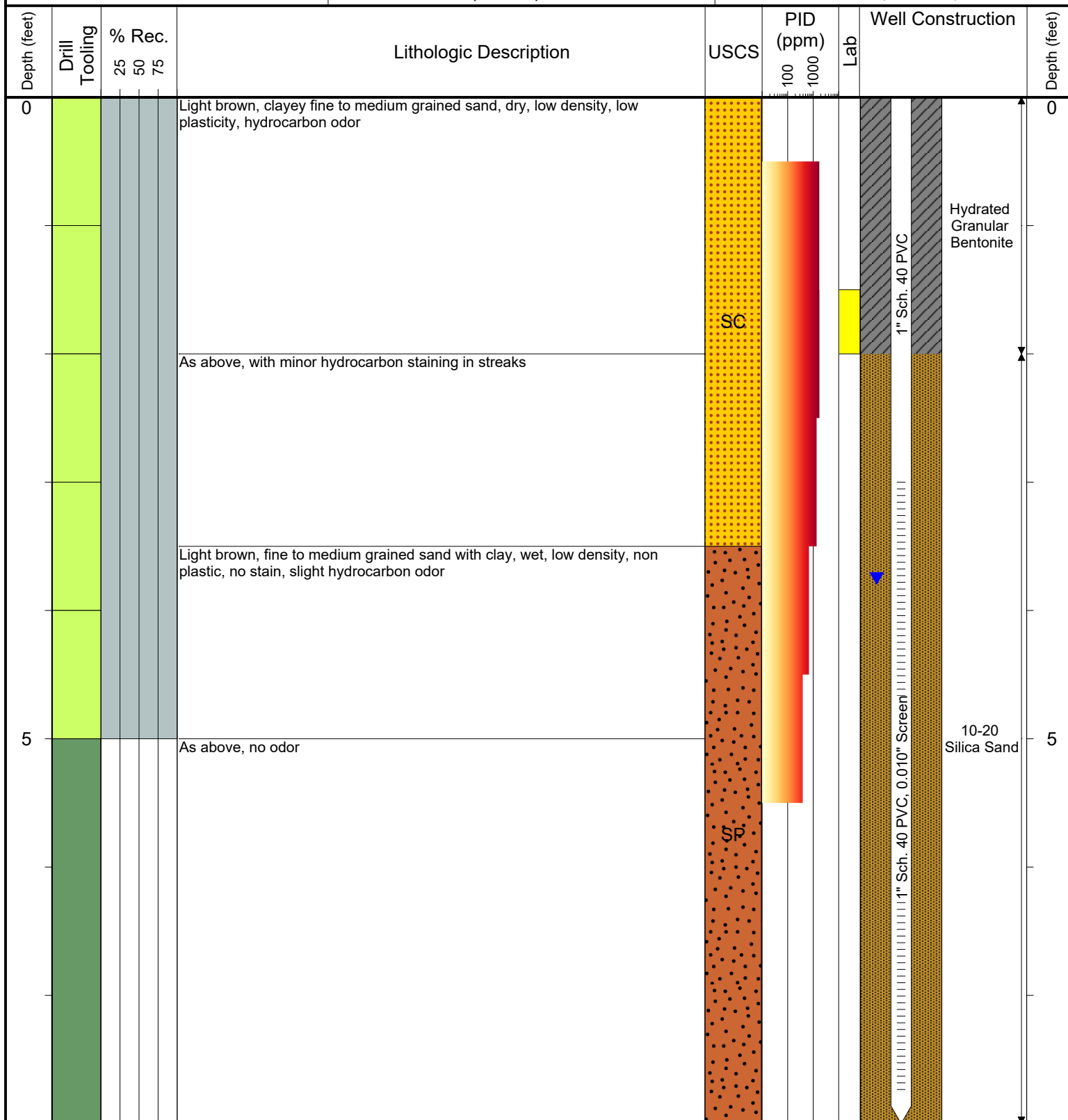
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295837481041

LONGITUDE (DEGREES): -104.5708210521

CASING ELEVATION (FT. AMSL): 4732.68

GROUND ELEVATION (FT. AMSL): 4730.77



Drilling / Sample Method:

Macro-Core

CME Continuous Core

Hand Auger

Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



DEPTH TO WATER (FT. BGS): 3.97

GROUND ELEVATION (FT. AMSL): 4731.22





6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7.5

DEPTH TO WATER (FT. BGS): 4.45

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH07

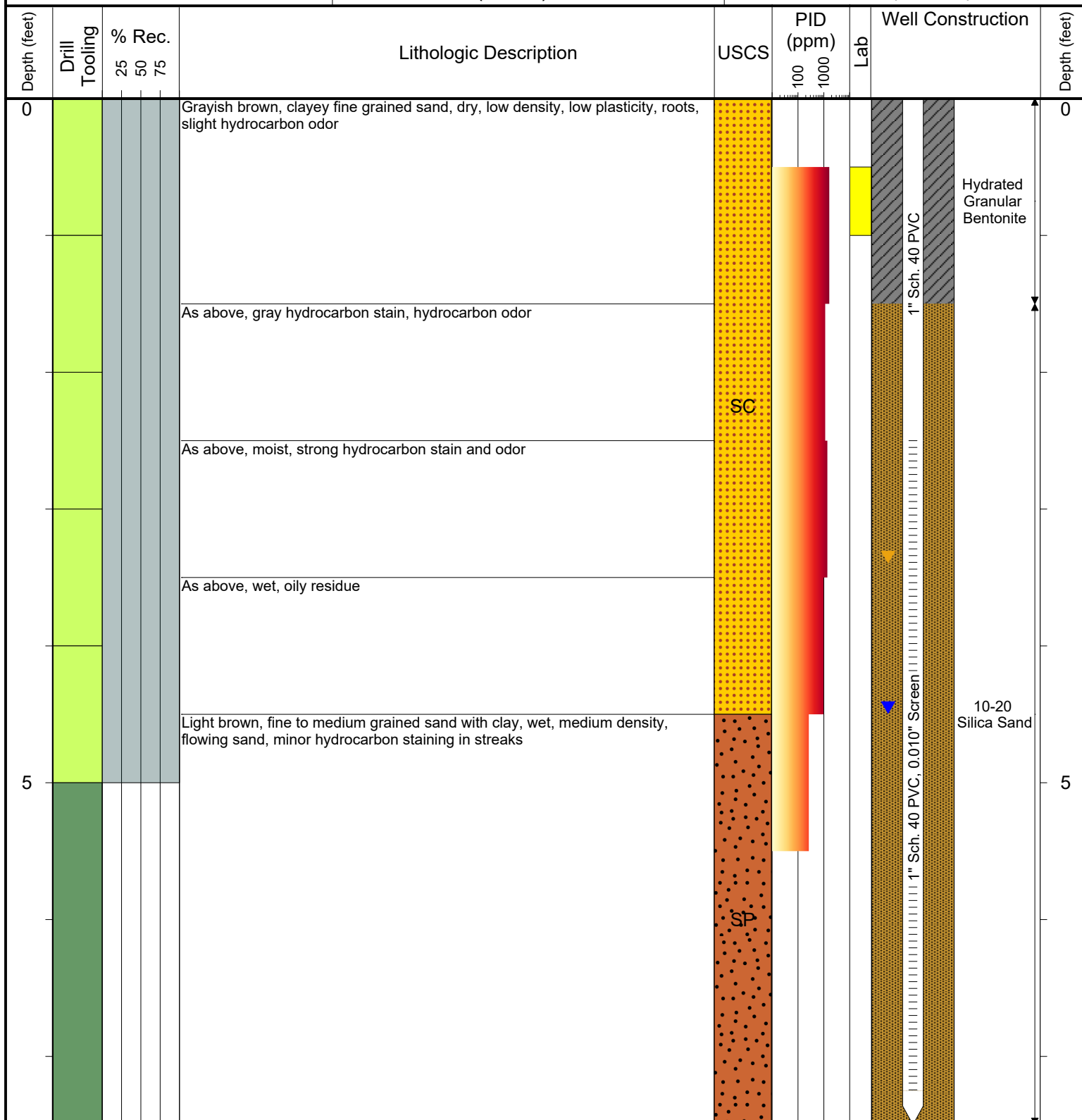
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295905389241

LONGITUDE (DEGREES): -104.57086496205

CASING ELEVATION (FT. AMSL): 4732.95

GROUND ELEVATION (FT. AMSL): 4730.3



Drilling / Sample Method:

Macro-Core

CME Continuous Core

Hand Auger

Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 3.48

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH08

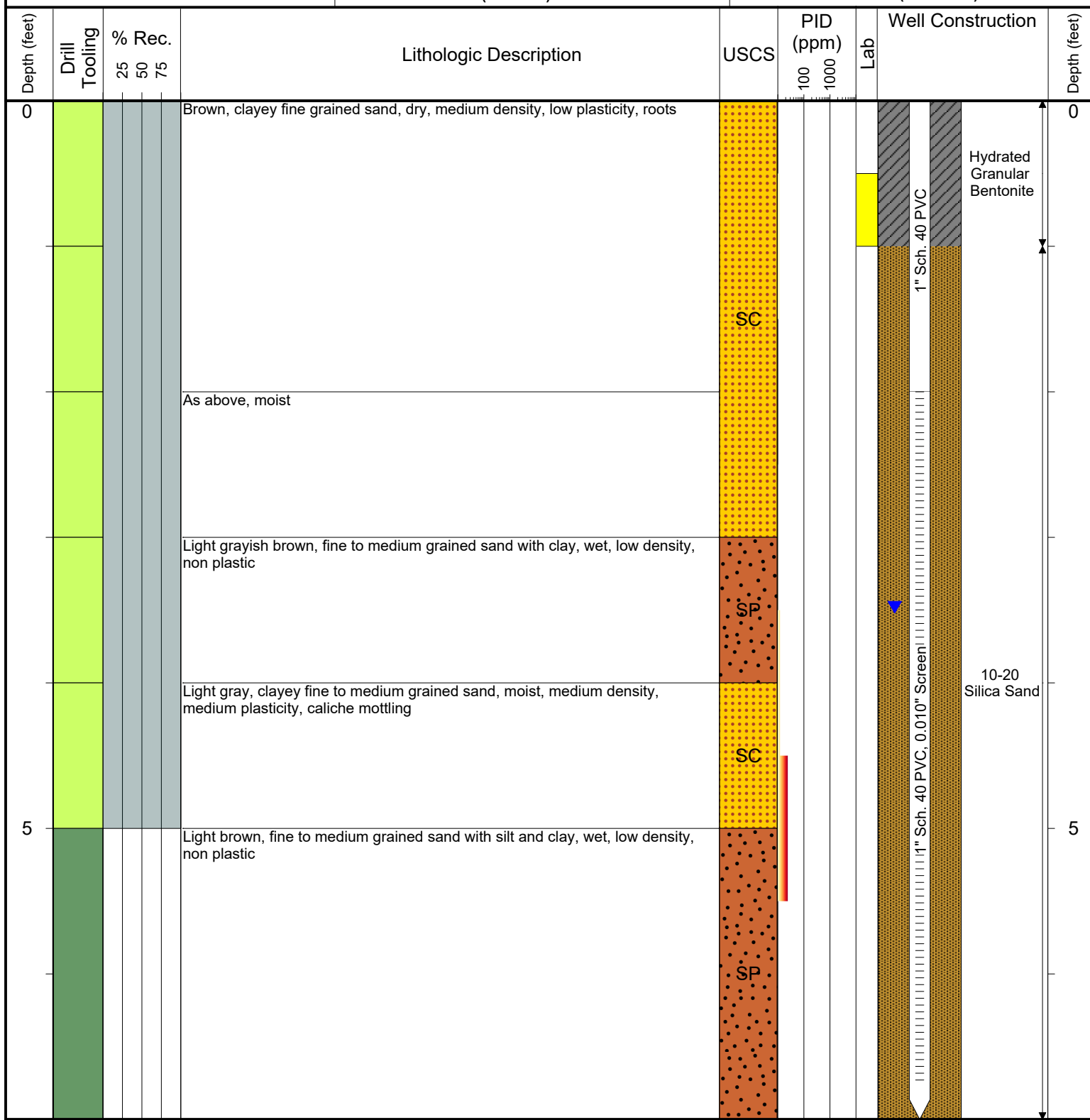
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295993155367

LONGITUDE (DEGREES): -104.57078962778

CASING ELEVATION (FT. AMSL): 4732.79

GROUND ELEVATION (FT. AMSL): 4729.82



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 3.8

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH09

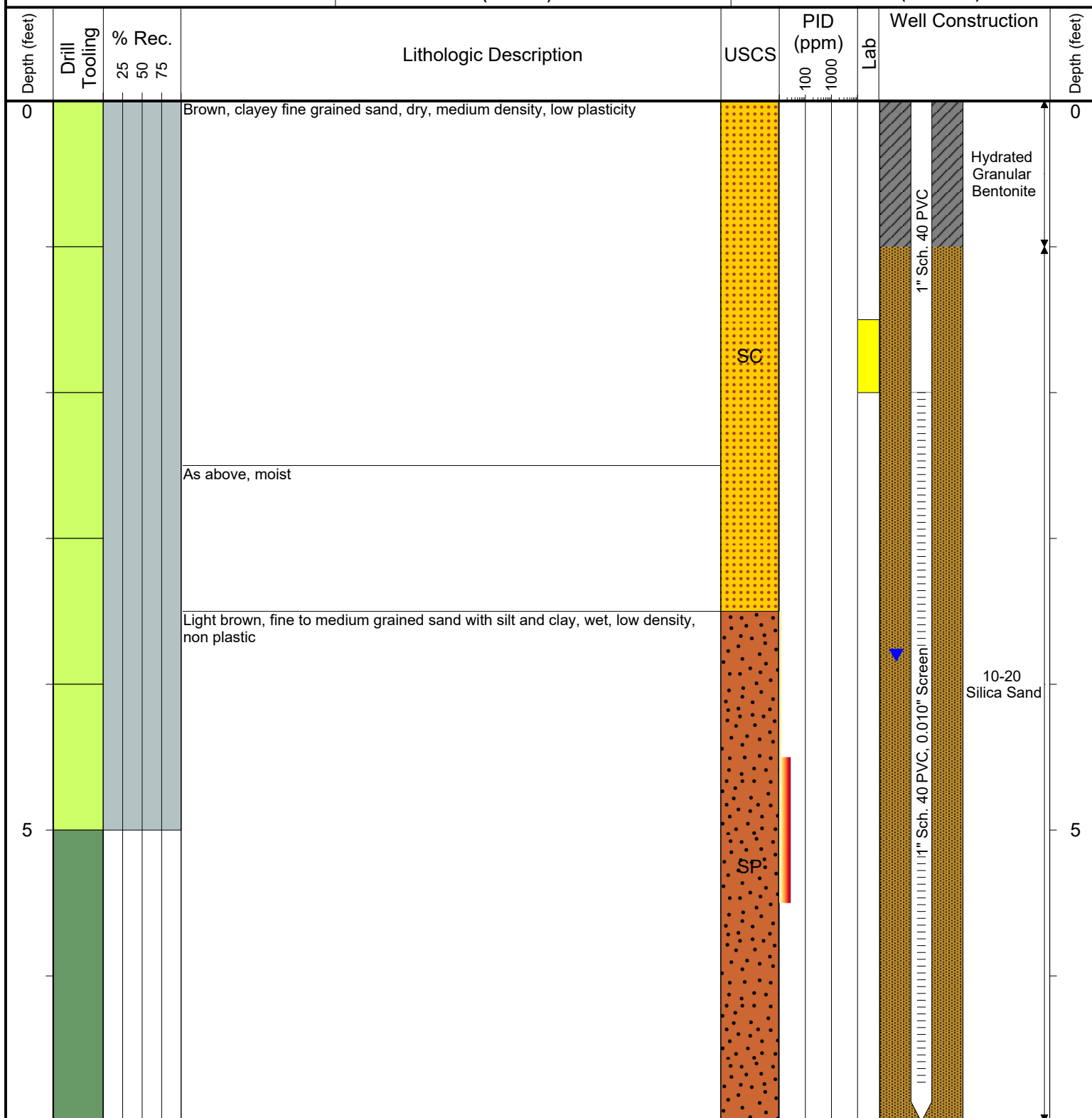
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295976127668

LONGITUDE (DEGREES): -104.57068404971

CASING ELEVATION (FT. AMSL): 4732.9

GROUND ELEVATION (FT. AMSL): 4730.06



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 4.36

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH10

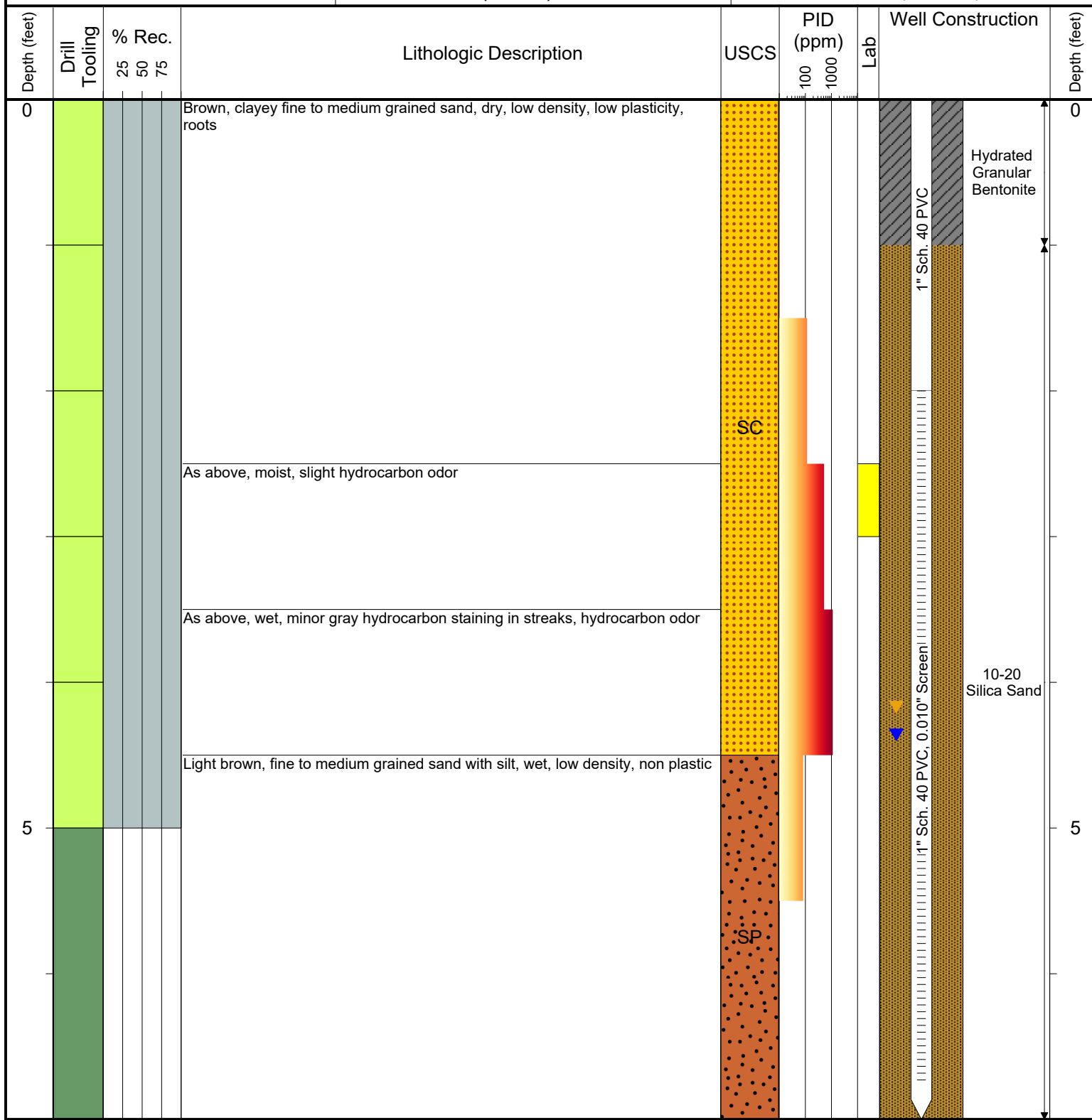
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295872306964

LONGITUDE (DEGREES): -104.57066424202

CASING ELEVATION (FT. AMSL): 4733.61

GROUND ELEVATION (FT. AMSL): 4730.34



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 8

DEPTH TO WATER (FT. BGS): 3.99

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH11

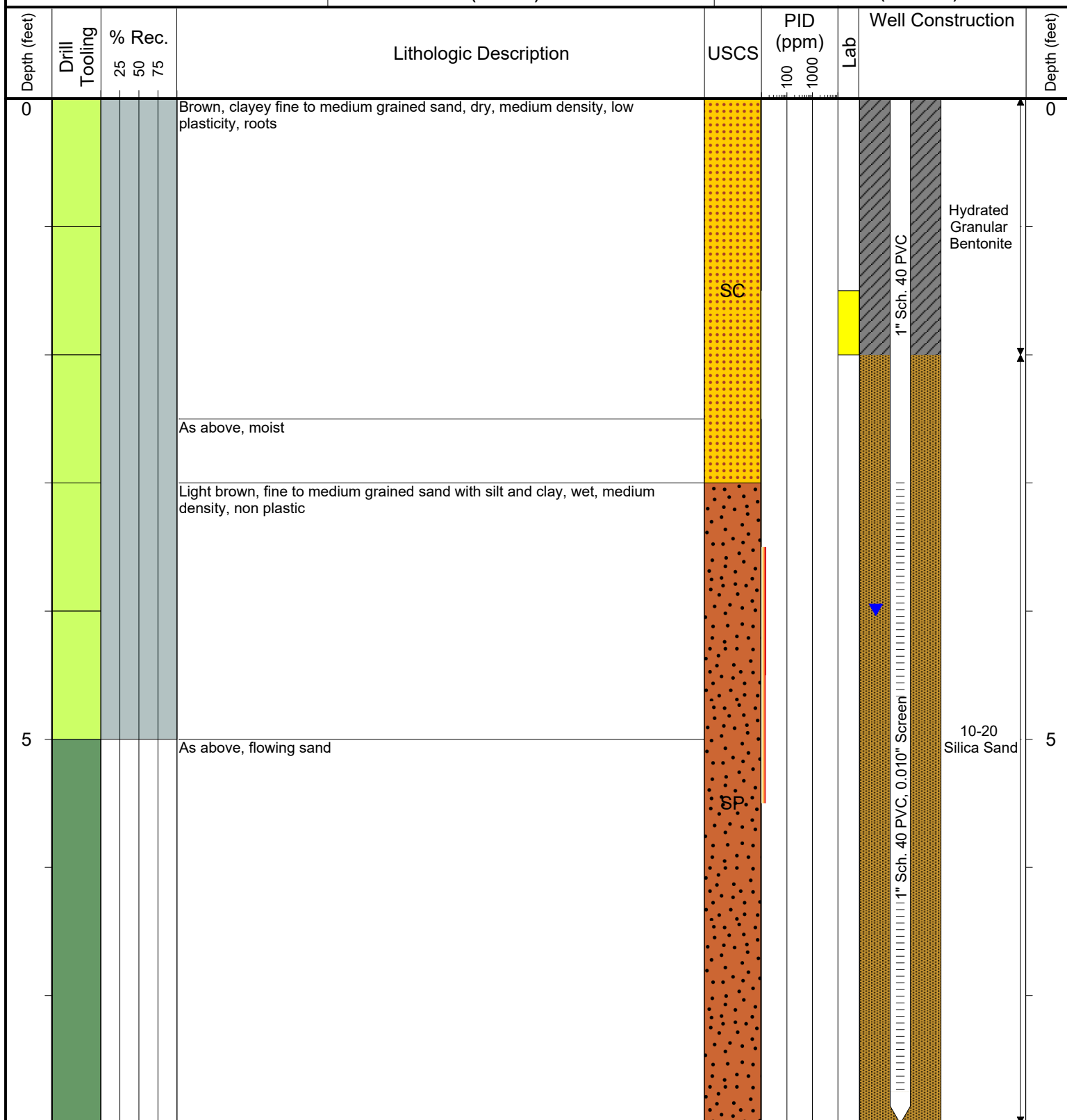
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295788414429

LONGITUDE (DEGREES): -104.57082696283

CASING ELEVATION (FT. AMSL): 4733.08

GROUND ELEVATION (FT. AMSL): 4731.05



Drilling / Sample Method:

Macro-Core

CME Continuous Core

Hand Auger

Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 8

DEPTH TO WATER (FT. BGS): 5.03

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH12

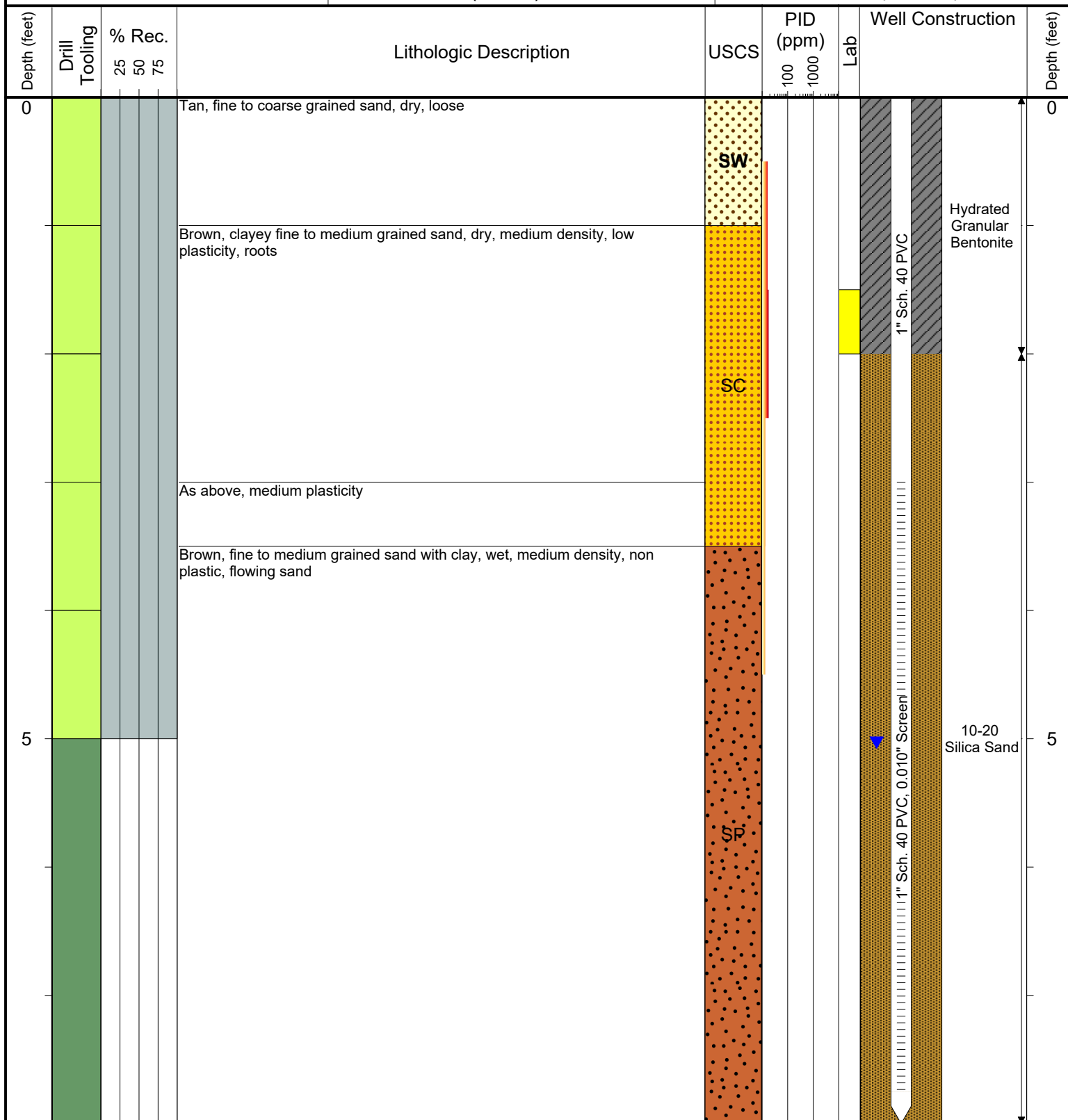
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.29582959396

LONGITUDE (DEGREES): -104.57096445938

CASING ELEVATION (FT. AMSL): 4734.34

GROUND ELEVATION (FT. AMSL): 4732.2



Drilling / Sample Method:

Macro-Core

CME Continuous Core

Hand Auger

Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 8

DEPTH TO WATER (FT. BGS): 4.15

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH13

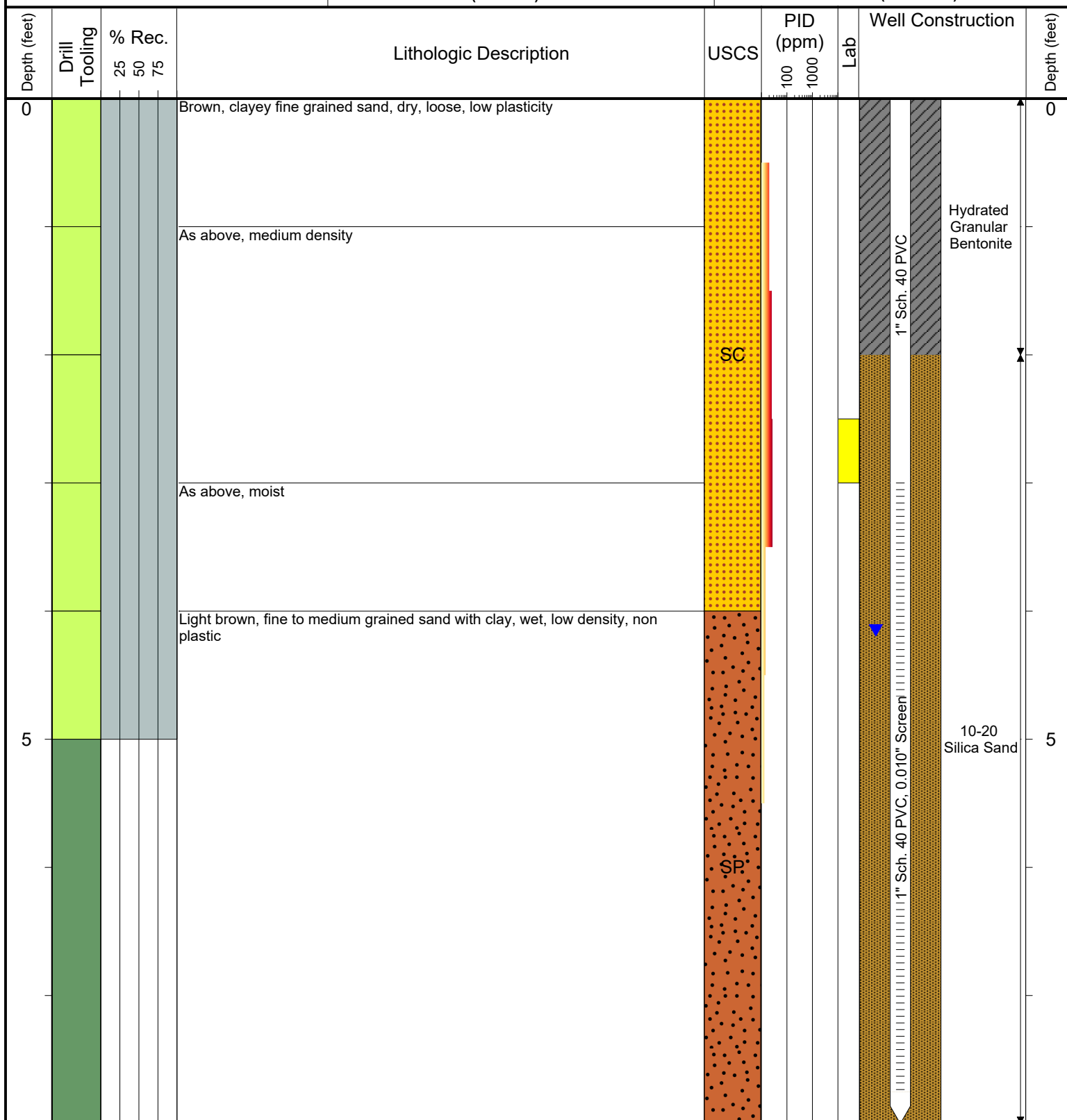
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.295926891643

LONGITUDE (DEGREES): -104.57092869749

CASING ELEVATION (FT. AMSL): 4733.08

GROUND ELEVATION (FT. AMSL): 4730.98



Drilling / Sample Method:

Macro-Core

CME Continuous Core

Hand Auger

Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 4.24

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH14

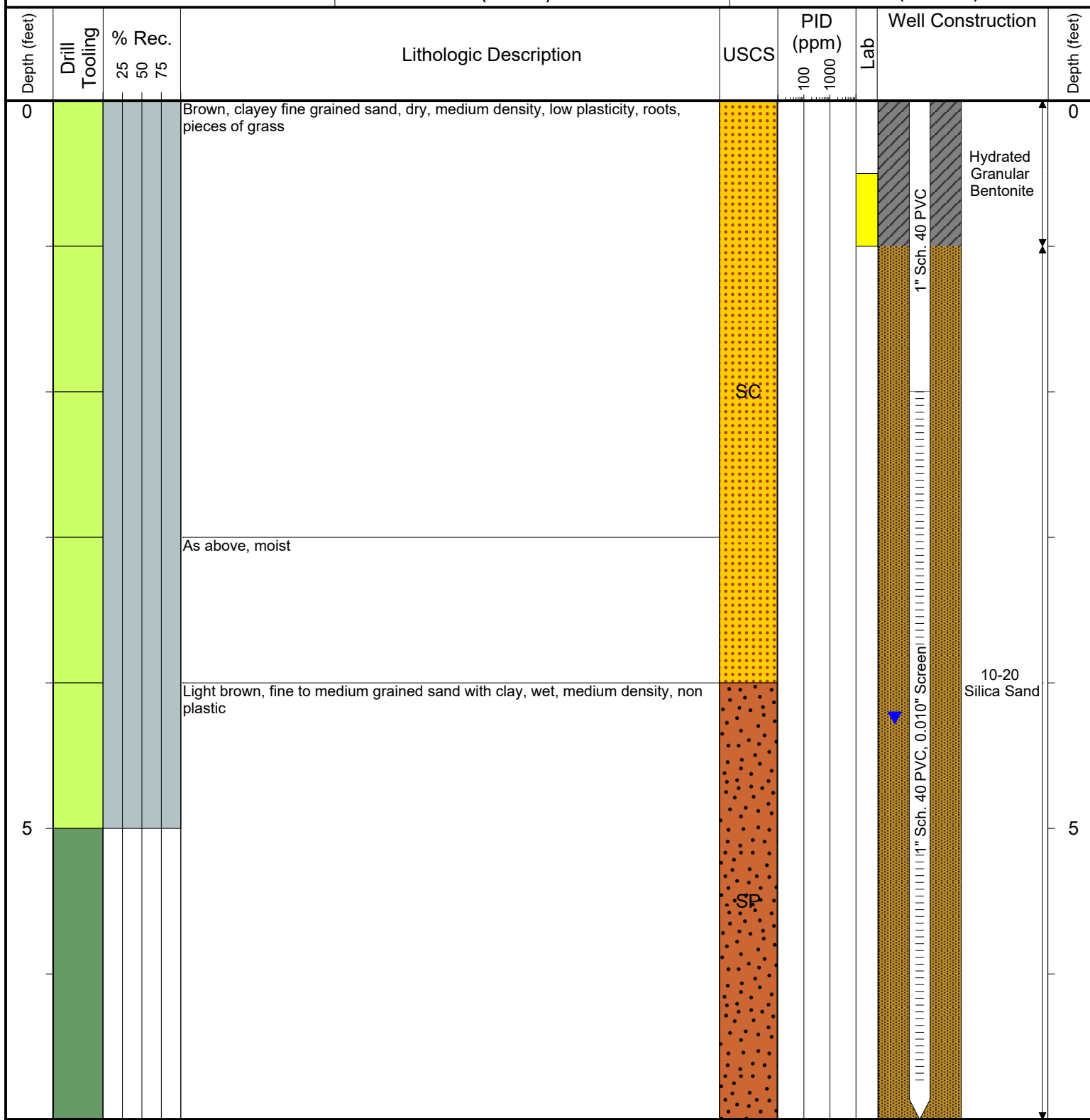
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.29587088063

LONGITUDE (DEGREES): -104.57059206206

CASING ELEVATION (FT. AMSL): 4733.44

GROUND ELEVATION (FT. AMSL): 4730.35



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 4.04

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH15

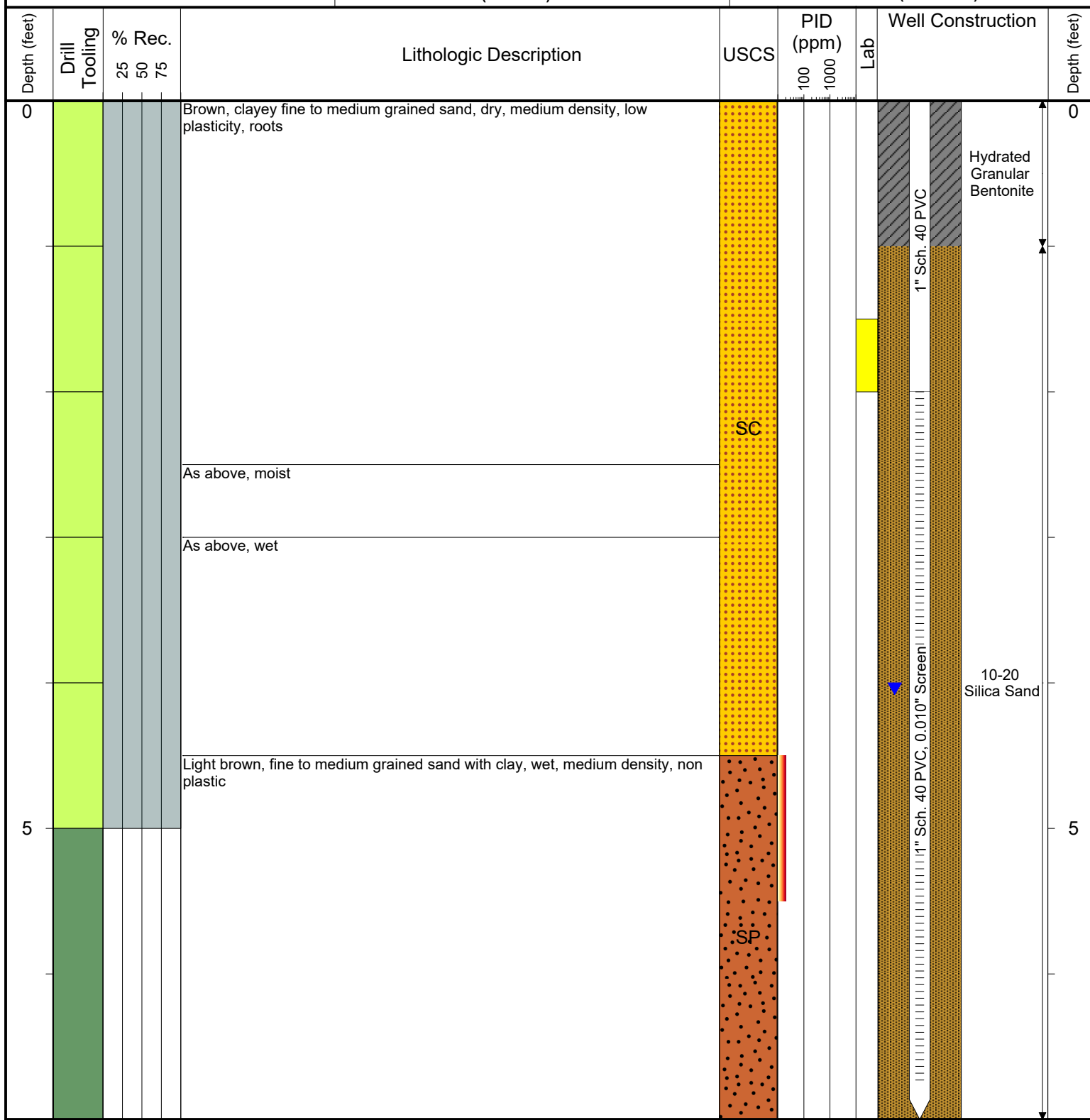
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.296016646609

LONGITUDE (DEGREES): -104.57061456348

CASING ELEVATION (FT. AMSL): 4732.8

GROUND ELEVATION (FT. AMSL): 4729.94



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/11/16

TOTAL BORING DEPTH (FT. BGS): 7

DEPTH TO WATER (FT. BGS): 4.14

Balboa C20-03, 23, 09SX

BORING / WELL ID: BH16

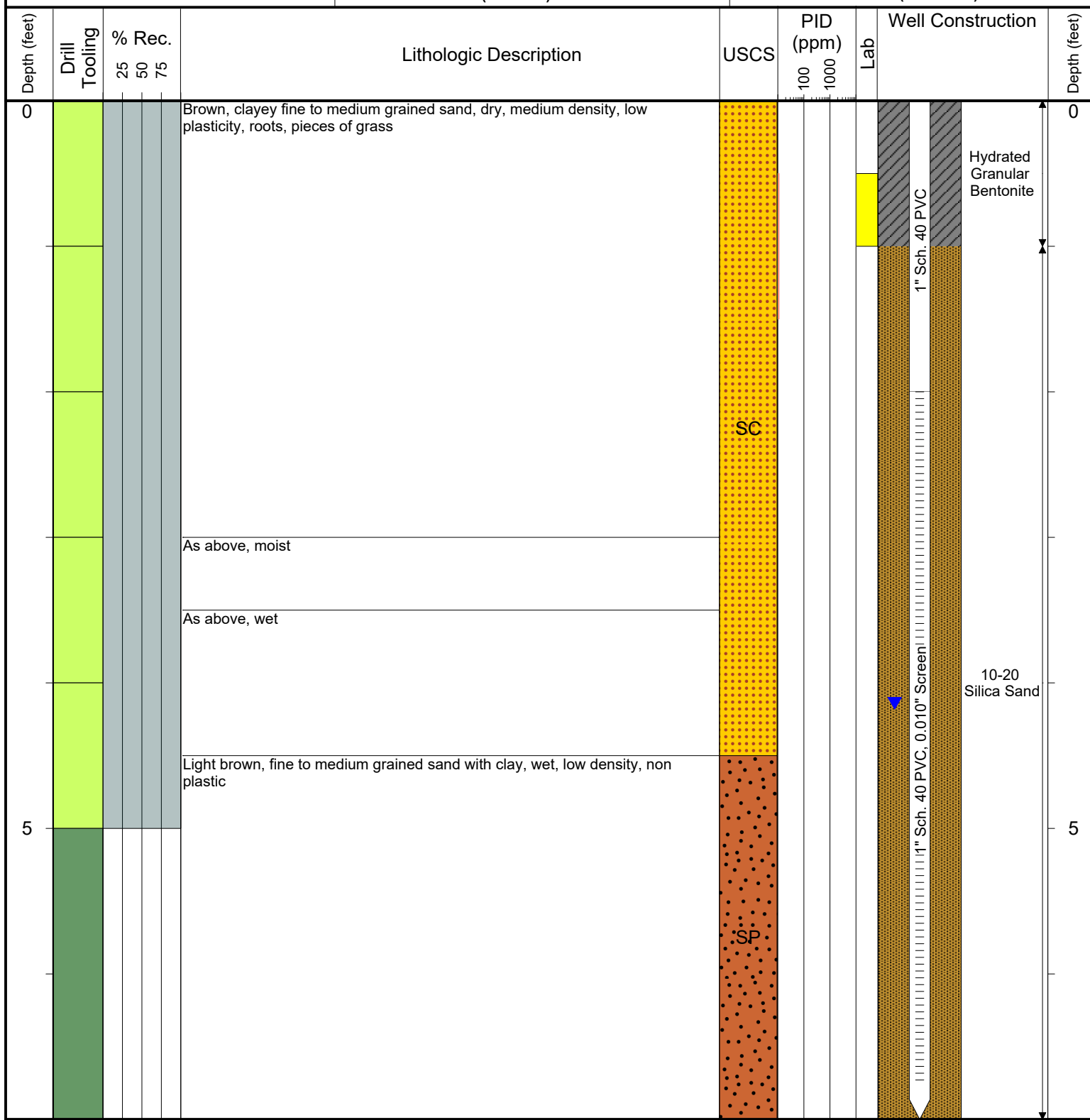
LOCATION: Weld County, CO

LATITUDE (DEGREES): 40.296037672837

LONGITUDE (DEGREES): -104.57078455548

CASING ELEVATION (FT. AMSL): 4733.25

GROUND ELEVATION (FT. AMSL): 4730.34



Drilling / Sample Method:

Macro-Core
CME Continuous Core

Hand Auger
Hollow Stem Auger

Laboratory Sample Types:

Geotechnical Lab
Analytical Chemistry Lab
Geotechnical & Analytical Chemistry Lab