

State of Colorado
Oil and Gas Conservation Commission



1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

FOR OGCC USE ONLY	
OGCC Employee:	
Spill Inspection	Complaint NOAV
Tracking No:	

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe): _____

OGCC Operator Number: _____	Contact Name and Telephone: _____
Name of Operator: _____	_____
Address: _____	No: _____
City: _____ State: _____ Zip: _____	Fax: _____

API Number: _____	County: _____
Facility Name: _____	Facility Number: _____
Well Name: _____	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): _____	Latitude: _____ Longitude: _____

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): _____

Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): _____

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: _____

Potential receptors (water wells within 1/4 mi, surface waters, etc.): _____

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
Soils	_____	_____
Vegetation	_____	_____
Groundwater	_____	_____
Surface Water	_____	_____

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

Describe how source is to be removed:

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

REMEDIATION WORKPLAN (Cont.)

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? Y N If yes, describe:

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: _____ Date Site Investigation Completed: _____ Date Remediation Plan Submitted: _____
Remediation Start Date: _____ Anticipated Completion Date: _____ Actual Completion Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: _____ Signed: _____

Title: _____ Date: _____

OGCC Approved: _____ Title: _____ Date: _____

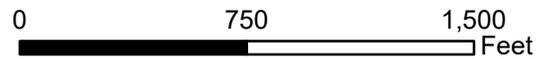
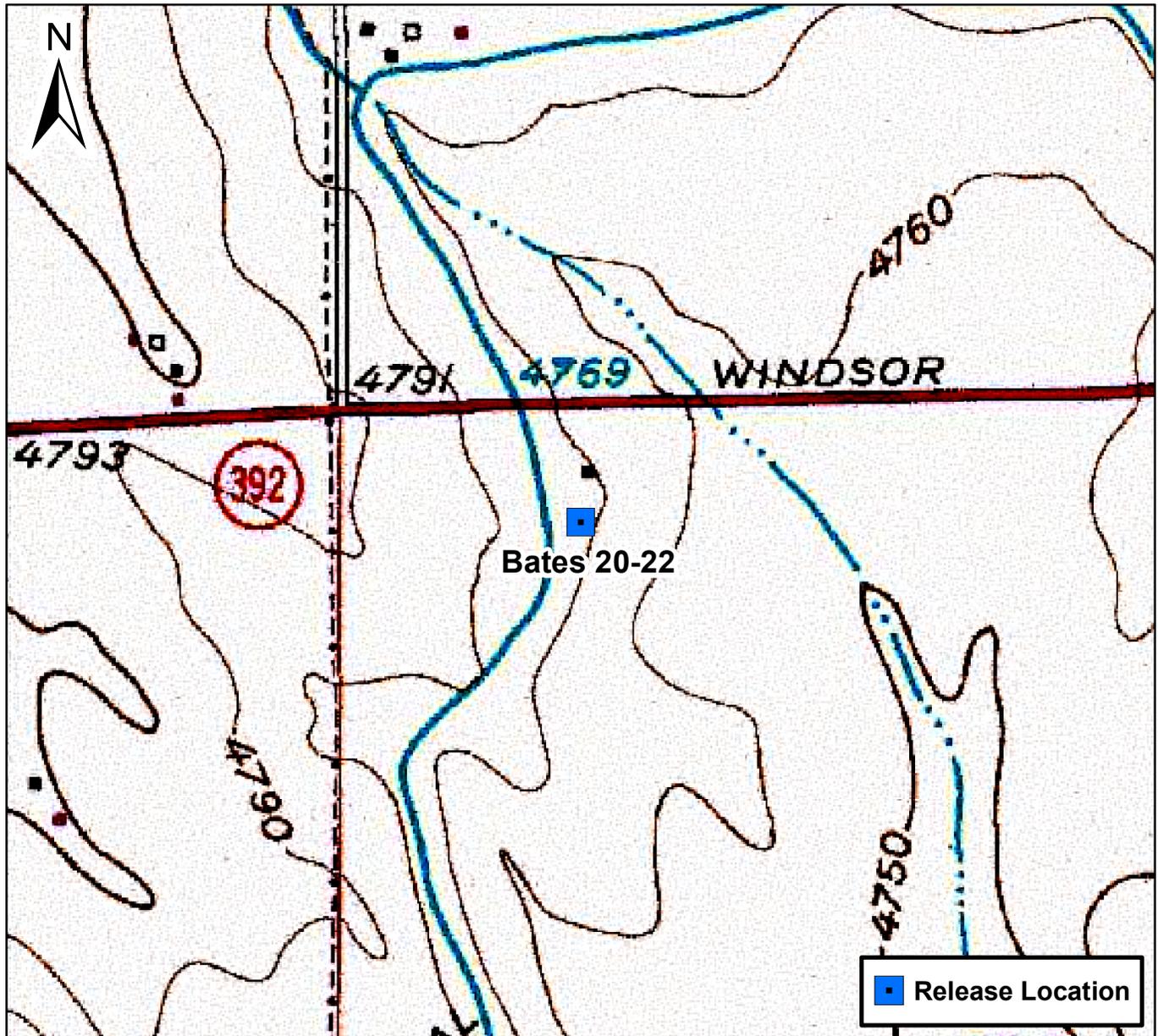
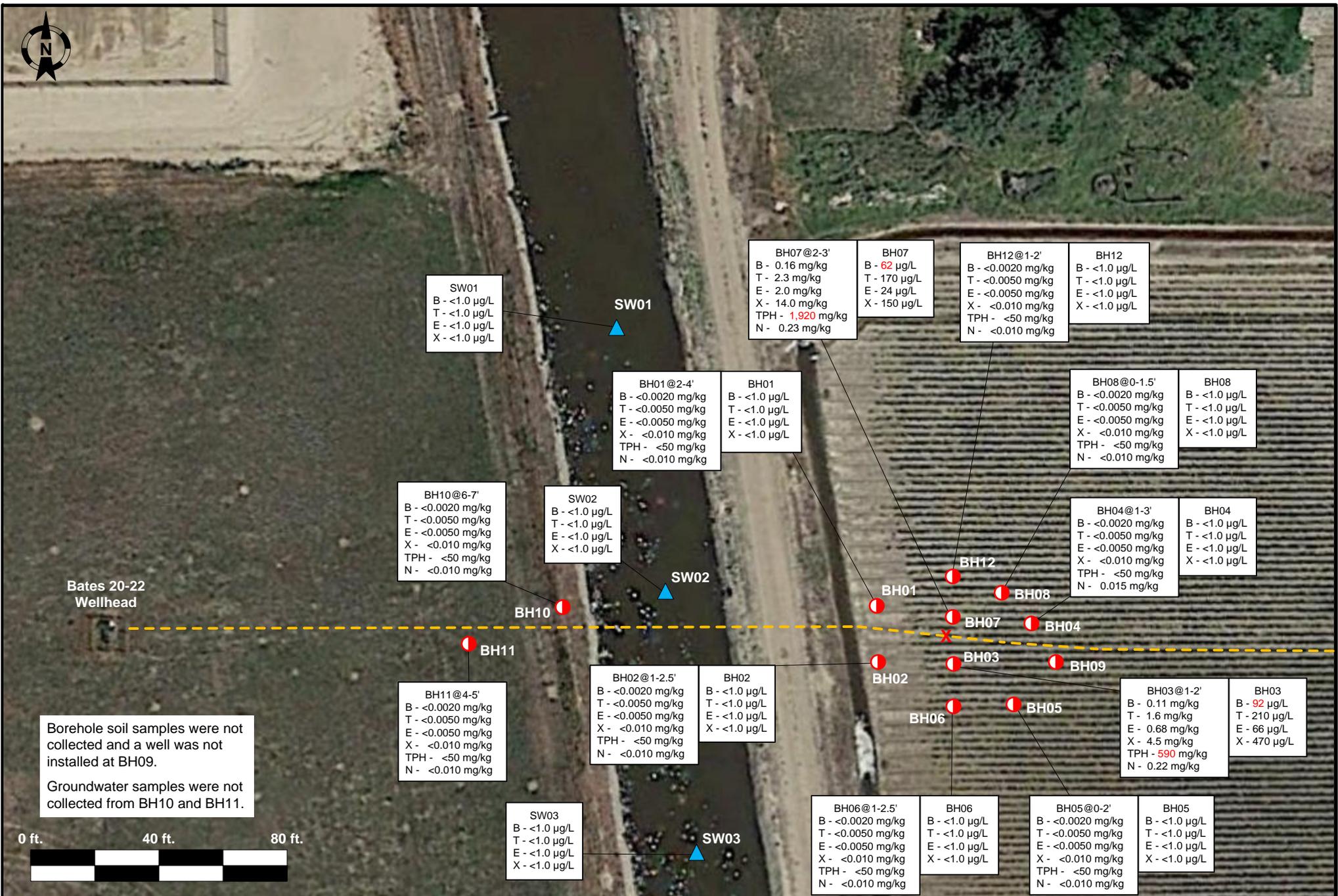


Figure 1

Site Location Map
 Bates 20-22
 NWNW S20 T6N R66W
 Weld County, Colorado





PROJECT NO:
 DRAWN BY: ESS
 DATE: 07/19/16



Facility
 Bates 20-22
 Weld County, CO

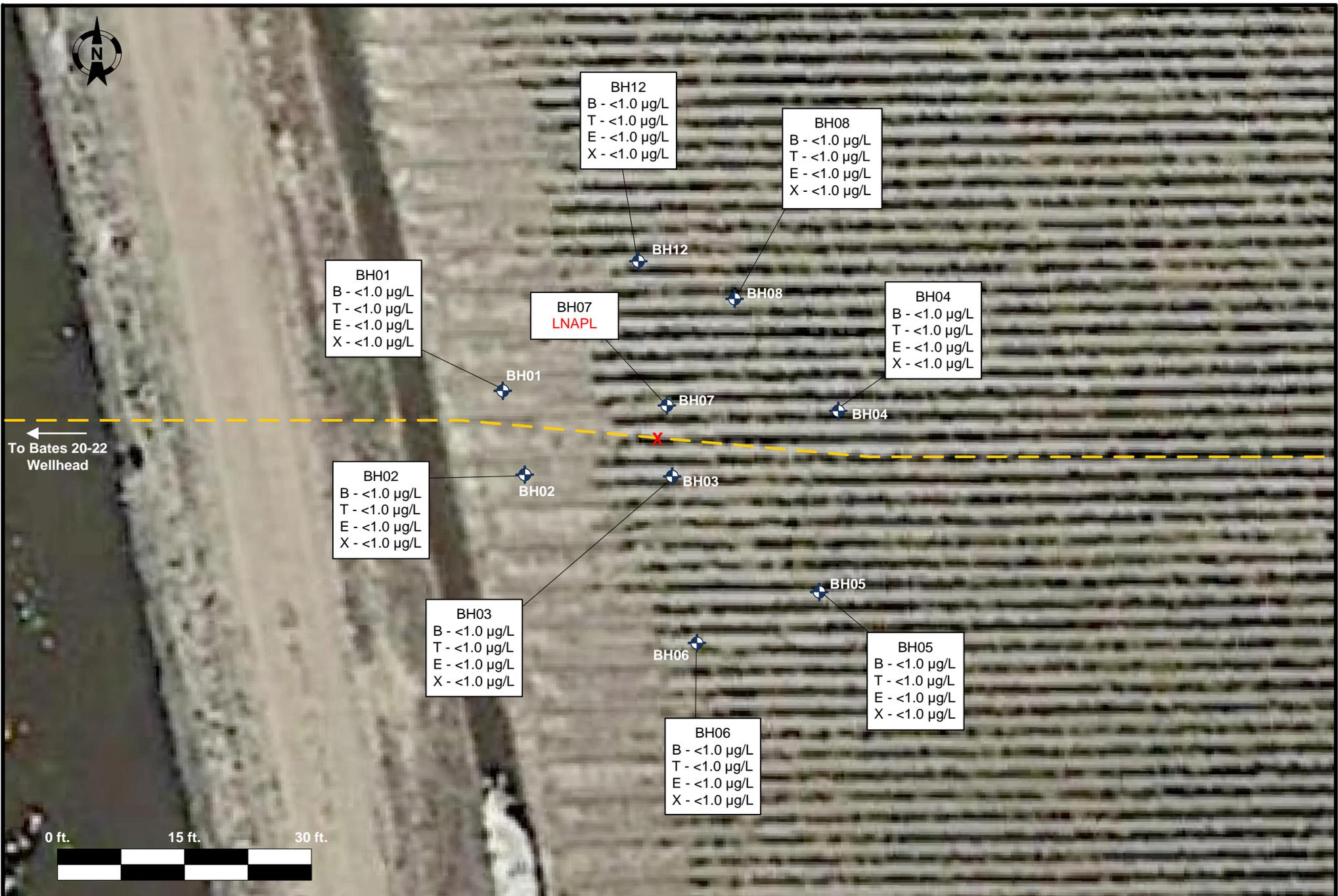
LEGEND:

	Soil Boring and Sampling Location	µg/L	Micrograms Per Liter
	Noble Flow Line	mg/kg	Milligrams Per Kilogram
	Surface Water Sample Location	X	Approximate Release Location

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

Borehole Soil and Groundwater Analytical Results Map (03/22/16 – 07/15/16)

Figure 2



PROJECT NO:
 DRAWN BY: ESS
 DATE: 07/19/16



Facility
 Bates 20-22
 Weld County, CO

LEGEND:
 Groundwater Monitoring Well
 Noble Flow Line

µg/L Micrograms Per Liter
 Approximate Release Location

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

Groundwater Analytical
 Results Map
 (07/13/16 – 07/15/16)
 Figure 3

TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22 FLOWLINE 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
BH01@2-4'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH02@1-2.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH03@1-2'	03/22/16	0.11	1.6	0.68	4.5	170	420	0.22
BH04@1-3'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	0.015
BH05@0-2'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH06@1-2.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH07@2-3'	03/22/16	0.16	2.3	2.0	14	720	1,200	0.23
BH08@0-1.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH10@6-7'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH11@4-5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH12@1-2'	07/15/16	<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 exceed the COGCC Table 910-1 standard

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22 FLOWLINE 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
BH01	03/22/16	<1.0	<1.0	<1.0	<1.0
BH01	07/13/16	<1.0	<1.0	<1.0	<1.0
BH02	03/22/16	<1.0	<1.0	<1.0	<1.0
BH02	07/13/16	<1.0	<1.0	<1.0	<1.0
BH03	03/22/16	92	210	66	470
BH03	07/13/16	<1.0	<1.0	<1.0	<1.0
BH04	03/22/16	<1.0	<1.0	<1.0	<1.0
BH04	07/13/16	<1.0	<1.0	<1.0	<1.0
BH05	03/22/16	<1.0	<1.0	<1.0	<1.0
BH05	07/13/16	<1.0	<1.0	<1.0	<1.0
BH06	03/22/16	<1.0	<1.0	<1.0	<1.0
BH06	07/13/16	<1.0	<1.0	<1.0	<1.0
BH07	03/22/16	62	170	24	150
BH07	07/13/16	Not Sampled - LNAPL Present			
BH08	03/22/16	<1.0	<1.0	<1.0	<1.0
BH08	07/13/16	<1.0	<1.0	<1.0	<1.0
BH12	07/15/16	<1.0	<1.0	<1.0	<1.0

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 exceed the COGCC Table 910-1 standard

TABLE 3
SURFACE WATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22 FLOWLINE 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
SW01	03/22/16	<1.0	<1.0	<1.0	<1.0
SW02	03/22/16	<1.0	<1.0	<1.0	<1.0
SW03	03/22/16	<1.0	<1.0	<1.0	<1.0

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 exceed the COGCC Table 910-1 standard

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 28, 2016

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Bates 20-22

Enclosed are the results of analyses for samples received by Summit Scientific on 03/22/16 17:50. 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', written in a cursive style.

Paul Shrewsbury
President



Tasman Geosciences
 6899 Pecos Street
 Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 03/28/16 12:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@2-4'	1603156-01	Soil	03/22/16 10:15	03/22/16 17:50
BH02@1-2.5'	1603156-02	Soil	03/22/16 10:40	03/22/16 17:50
BH03@1-2'	1603156-03	Soil	03/22/16 11:15	03/22/16 17:50
BH04@1-3'	1603156-04	Soil	03/22/16 11:45	03/22/16 17:50
BH05@0-2'	1603156-05	Soil	03/22/16 12:05	03/22/16 17:50
BH06@1-2.5'	1603156-06	Soil	03/22/16 12:30	03/22/16 17:50
BH07@2-3'	1603156-07	Soil	03/22/16 13:00	03/22/16 17:50
BH08@0-1.5'	1603156-08	Soil	03/22/16 13:20	03/22/16 17:50
BH10@6-7'	1603156-09	Soil	03/22/16 15:00	03/22/16 17:50
BH11@4-5'	1603156-10	Soil	03/22/16 15:30	03/22/16 17:50
BH01	1603156-11	Water	03/22/16 14:15	03/22/16 17:50
BH02	1603156-12	Water	03/22/16 14:20	03/22/16 17:50
BH03	1603156-13	Water	03/22/16 15:25	03/22/16 17:50
BH04	1603156-14	Water	03/22/16 15:30	03/22/16 17:50
BH05	1603156-15	Water	03/22/16 15:34	03/22/16 17:50
BH06	1603156-16	Water	03/22/16 15:39	03/22/16 17:50
BH07	1603156-17	Water	03/22/16 15:43	03/22/16 17:50
BH08	1603156-18	Water	03/22/16 15:49	03/22/16 17:50
SW01	1603156-19	Water	03/22/16 15:10	03/22/16 17:50
SW02	1603156-20	Water	03/22/16 15:15	03/22/16 17:50
SW03	1603156-21	Water	03/22/16 15:20	03/22/16 17:50

Case Narrative

Client: Tasman Geosciences

Project: Bates 20-22

Report Number 1603156

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

Per client request via email dated 3/23/16 from Jacob Whritenour, the sample IDs in this report have been changed in the following manner:

SS(ID@depth) to BH(ID@depth) for all soils samples.

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

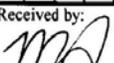
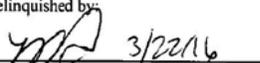
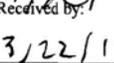
Summit Scientific 1603156.1

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

Page 1 of 3

Client: Noble/Tasman
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____
Sampler Name: Jacob Whritenour & Rob Irvin

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: _____
Project Name: Bates 20-22
Project Number: _____

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For:				Special Instructions		
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN		8015 DRO	pH, EC, SAR
SS01 @ 2-4'	3/22/2016	10:15a	1		X			X				X	X			
SS02 @ 1-2.5'	3/22/2016	10:40a	1		X			X				X	X			
SS03 @ 1-2'	3/22/2016	11:15a	1		X			X				X	X			
SS04 @ 1-3'	3/22/2016	11:45a	1		X			X				X	X			
SS05 @ 0-2'	3/22/2016	12:05	1		X			X				X	X			
SS06 @ 1-2.5'	3/22/2016	12:30	1		X			X				X	X			
SS07 @ 2-3'	3/22/2016	13:00	1		X			X				X	X			
SS08 @ 0-1.5'	3/22/2016	13:20	1		X			X				X	X			
SS09 @ 6-7'	3/22/2016	15:00	1		X			X				X	X			
SS10 @ 4-5'	3/22/2016	15:30	1		X			X				X	X			
Relinquished by:  3/22/16		Date/Time: 1700	Received by:  3/22/16		Date/Time: 1700	Turn Around Time (Check)			Notes:							
Relinquished by:  3/22/16		Date/Time: 1750	Received by:  3/22/16		Date/Time: 1730	Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>			Temperature Upon Receipt: 4.8°C on ice							
Relinquished by: _____		Date/Time: _____	Received in Lab by: _____		Date/Time: _____	24 Hours <input type="checkbox"/> Standard <input type="checkbox"/>							Sample Integrity:			
						48 Hours <input type="checkbox"/>			Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							

www.s2scientific.com





Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

Summit Scientific 1603156.2

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

Page 2 of 3

Client: <u>Noble/Tasman</u>	Project Manager: <u>Brandon Bruns, Invoice: Jacob Evans</u>
Address: _____	E-Mail: _____
City/State/Zip: _____	Project Name: <u>Bates 20-22</u>
Phone: _____ Fax: _____	Project Number: _____
Sampler Name: <u>Jacob Whritenour & Rob Irvin</u>	

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For:					Special Instructions		
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO		pH, EC, SAR	
BH01	3/22/2016	1415	3	X				X				X					
BH02	3/22/2016	1420						X				X					
BH03	3/22/2016	1525						X				X					
BH04	3/22/2016	1530						X				X					
BH05	3/22/2016	1534						X				X					
BH06	3/22/2016	1539						X				X					
BH07	3/22/2016	1543						X				X					
BH08	3/22/2016	1549						X				X					
SW01	3/22/2016	1510						X				X					
SW02	3/22/2016	1515	↓	↓				X				X					
Relinquished by: <u>[Signature]</u> Date/Time: <u>3/22/16 1700</u>				Received by: <u>[Signature]</u> Date/Time: <u>3/22/16 1700</u>				Turn Around Time (Check)					Notes:				
								Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>					on ice				
								24 Hours <input type="checkbox"/>									
								48 Hours <input type="checkbox"/>									
Relinquished by: <u>[Signature]</u> Date/Time: <u>3/22/16 1750</u>				Received in Lab by: _____ Date/Time: _____				Sample Integrity:									
								Temperature Upon Receipt: <u>4.0°C</u>									
								Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

Summit Scientific 1603156.3

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

Page 3 of 3

Client: <u>Noble/Tasman</u>	Project Manager: <u>Brandon Bruns, Invoice: Jacob Evans</u>
Address: _____	E-Mail: _____
City/State/Zip: _____	Project Name: <u>Bates 20-22</u>
Phone: _____ Fax: _____	Project Number: _____
Sampler Name: <u>Jacob Whritenour & Rob Irvin</u>	

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For:				Special Instructions		
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN		8015 DRO	pH, EC, SAR
SW03	3/22/2016	1520	3	X												
Relinquished by: <u>[Signature]</u> 3/22/16		Date/Time: 1700	Received by: <u>[Signature]</u> 3/22/16		Date/Time: 1700	Turn Around Time (Check)			Notes:							
Relinquished by: <u>[Signature]</u> 3/22/16		Date/Time: 1750	Received by:		Date/Time:	Same Day	<input checked="" type="checkbox"/>	72 Hours	<input type="checkbox"/>	on ice						
Relinquished by:		Date/Time:	Received in Lab by:		Date/Time:	24 Hours	<input type="checkbox"/>	Standard	<input type="checkbox"/>							
Relinquished by:		Date/Time:	Received in Lab by:		Date/Time:	48 Hours	<input type="checkbox"/>	Sample Integrity:								
						Temperature Upon Receipt: 4.0°C	Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									

www.s2scientific.com



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH01@2-4'
1603156-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/22/16	8015M	

Date Sampled: **03/22/16 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		113 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1603234	03/22/16	03/22/16	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: **03/22/16 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

BH02@1-2.5'
1603156-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/22/16	8015M	

Date Sampled: **03/22/16 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		114 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1603234	03/22/16	03/22/16	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: **03/22/16 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		108 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

BH03@1-2'
1603156-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	420	50	mg/kg	1	1603235	03/22/16	03/22/16	8015M	

Date Sampled: **03/22/16 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		117 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.22	0.010	mg/kg	1	1603234	03/22/16	03/22/16	EPA 8260B	
Benzene	0.11	0.0020	"	"	"	"	"	"	
Toluene	1.6	0.0050	"	"	"	"	"	"	E
Ethylbenzene	0.68	0.0050	"	"	"	"	"	"	
Xylenes (total)	4.5	0.010	"	"	"	"	"	"	E
Gasoline Range Hydrocarbons	170	50	"	"	"	"	"	"	E

Date Sampled: **03/22/16 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		143 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		139 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

BH04@1-3'
1603156-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/23/16	8015M	

Date Sampled: **03/22/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		121 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.015	0.010	mg/kg	1	1603234	03/22/16	03/22/16	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: **03/22/16 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH05@0-2'
1603156-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/23/16	8015M	

Date Sampled: **03/22/16 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		113 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1603234	03/22/16	03/23/16	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: **03/22/16 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH06@1-2.5'
1603156-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/23/16	8015M	

Date Sampled: **03/22/16 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		113 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1603234	03/22/16	03/23/16	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: **03/22/16 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		106 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH07@2-3'
1603156-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1200	50	mg/kg	1	1603235	03/22/16	03/23/16	8015M	

Date Sampled: **03/22/16 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		118 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.23	0.010	mg/kg	1	1603234	03/22/16	03/23/16	EPA 8260B	
Benzene	0.16	0.0020	"	"	"	"	"	"	
Toluene	2.3	0.050	"	10	"	"	"	"	
Ethylbenzene	2.0	0.050	"	"	"	"	"	"	
Xylenes (total)	14	0.10	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	720	500	"	"	"	"	"	"	

Date Sampled: **03/22/16 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		99.8 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		151 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		113 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH08@0-1.5'
1603156-08 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/23/16	8015M	

Date Sampled: **03/22/16 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		117 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1603234	03/22/16	03/23/16	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: **03/22/16 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		104 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		99.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH10@6-7'
1603156-09 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/23/16	8015M	

Date Sampled: **03/22/16 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1603234	03/22/16	03/23/16	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: **03/22/16 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

BH11@4-5'
1603156-10 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/16 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1603235	03/22/16	03/23/16	8015M	

Date Sampled: **03/22/16 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		110 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1603234	03/22/16	03/23/16	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: **03/22/16 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		103 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		90.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH01
1603156-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.4 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		106 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH02
1603156-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

BH03
1603156-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	92	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	210	100	"	100	"	"	03/22/16	"	
Ethylbenzene	66	1.0	"	1	"	"	03/22/16	"	
Xylenes (total)	470	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH04
1603156-14 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>100 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>104 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>111 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH05
1603156-15 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		98.3 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		104 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH06
1603156-16 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>101 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>104 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>109 %</i>	<i>45-146</i>		"	"	"	"	

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

BH07
1603156-17 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	62	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	170	1.0	"	"	"	"	"	"	
Ethylbenzene	24	1.0	"	"	"	"	"	"	
Xylenes (total)	150	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		96.0 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		103 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

BH08
1603156-18 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>102 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>105 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>109 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

SW01
1603156-19 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>100 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>103 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>107 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

SW02
1603156-20 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		99.5 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		103 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

SW03
1603156-21 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/16 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1603236	03/22/16	03/22/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/22/16 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		99.3 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		104 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		110 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1603235 - EPA 3550A

Blank (1603235-BLK1)

Prepared: 03/22/16 Analyzed: 03/23/16

C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	14.2		"	12.5		114	30-150				

LCS (1603235-BS1)

Prepared: 03/22/16 Analyzed: 03/23/16

C10-C28 (DRO)	512	50	mg/kg	499		103	73-134				
<i>Surrogate: o-Terphenyl</i>	13.7		"	12.5		110	30-150				

Matrix Spike (1603235-MS1)

Source: 1603154-01

Prepared: 03/22/16 Analyzed: 03/23/16

C10-C28 (DRO)	476	50	mg/kg	481	34.0	91.8	50-148				
<i>Surrogate: o-Terphenyl</i>	13.2		"	12.0		110	30-150				

Matrix Spike Dup (1603235-MSD1)

Source: 1603154-01

Prepared: 03/22/16 Analyzed: 03/23/16

C10-C28 (DRO)	486	50	mg/kg	481	34.0	94.1	50-148	2.25		13	
<i>Surrogate: o-Terphenyl</i>	13.4		"	12.0		111	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 1603234 - EPA 5030 Soil MS

Blank (1603234-BLK1)

Prepared: 03/22/16 Analyzed: 03/23/16

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>0.0372</i>		<i>"</i>	<i>0.0400</i>		<i>93.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.0</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>21-167</i>			

LCS (1603234-BS1)

Prepared: 03/22/16 Analyzed: 03/23/16

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0978	0.0020	"	0.100		97.8	58-130			
Toluene	0.106	0.0050	"	0.100		106	61-134			
Ethylbenzene	0.114	0.0050	"	0.0992		114	74-139			
m,p-Xylene	0.210	0.010	"	0.200		105	73-137			
o-Xylene	0.106	0.0050	"	0.0980		108	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0428</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0414</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>21-167</i>			

Matrix Spike (1603234-MS1)

Source: 1603154-01

Prepared: 03/22/16 Analyzed: 03/23/16

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0932	0.0020	"	0.0978	ND	95.3	30-131			
Toluene	0.106	0.0050	"	0.0978	ND	108	30-134			
Ethylbenzene	0.118	0.0050	"	0.0971	ND	122	22-153			
m,p-Xylene	0.219	0.010	"	0.195	ND	112	10-159			
o-Xylene	0.102	0.0050	"	0.0959	ND	106	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0391</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0392</i>		<i>"</i>	<i>0.0391</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0409</i>		<i>"</i>	<i>0.0391</i>		<i>104</i>	<i>21-167</i>			

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 1603234 - EPA 5030 Soil MS

Matrix Spike Dup (1603234-MSD1)

Source: 1603154-01

Prepared: 03/22/16 Analyzed: 03/23/16

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0948	0.0020	"	0.0988	ND	96.0	30-131	1.70	34	
Toluene	0.108	0.0050	"	0.0988	ND	109	30-134	1.84	30	
Ethylbenzene	0.124	0.0050	"	0.0980	ND	126	22-153	4.86	24	
m,p-Xylene	0.231	0.010	"	0.197	ND	117	10-159	5.43	68	
o-Xylene	0.114	0.0050	"	0.0968	ND	118	31-151	11.3	38	
Surrogate: 1,2-Dichloroethane-d4	0.0382		"	0.0395		96.5	23-173			
Surrogate: Toluene-d8	0.0388		"	0.0395		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0395		99.6	21-167			

Batch 1603236 - EPA 5030 Water MS

Blank (1603236-BLK1)

Prepared: 03/22/16 Analyzed: 03/23/16

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		99.4	37-154			
Surrogate: Toluene-d8	13.8		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	45-146			

LCS (1603236-BS1)

Prepared: 03/22/16 Analyzed: 03/23/16

Benzene	31.8	1.0	ug/l	33.3		95.4	51-132			
Toluene	31.0	1.0	"	33.3		92.9	51-138			
Ethylbenzene	35.6	1.0	"	33.1		108	58-146			
m,p-Xylene	72.2	2.0	"	66.5		109	57-144			
o-Xylene	34.0	1.0	"	32.7		104	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		100	37-154			
Surrogate: Toluene-d8	13.7		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/28/16 12:21

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 1603236 - EPA 5030 Water MS

Matrix Spike (1603236-MS1)	Source: 1603156-12			Prepared: 03/22/16		Analyzed: 03/23/16	
Benzene	32.2	1.0	ug/l	33.3	ND	96.6	34-141
Toluene	31.2	1.0	"	33.3	ND	93.8	27-151
Ethylbenzene	34.6	1.0	"	33.1	ND	105	29-160
m,p-Xylene	70.7	2.0	"	66.5	ND	106	20-166
o-Xylene	33.0	1.0	"	32.7	ND	101	33-159
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>103</i>	<i>37-154</i>
<i>Surrogate: Toluene-d8</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>45-149</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.0</i>		<i>"</i>	<i>13.3</i>		<i>105</i>	<i>45-146</i>

Matrix Spike Dup (1603236-MSD1)	Source: 1603156-12			Prepared: 03/22/16		Analyzed: 03/23/16			
Benzene	32.3	1.0	ug/l	33.3	ND	96.9	34-141	0.372	32
Toluene	31.8	1.0	"	33.3	ND	95.3	27-151	1.62	25
Ethylbenzene	34.5	1.0	"	33.1	ND	104	29-160	0.318	50
m,p-Xylene	71.1	2.0	"	66.5	ND	107	20-166	0.536	36
o-Xylene	32.6	1.0	"	32.7	ND	99.8	33-159	1.04	26
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>37-154</i>		
<i>Surrogate: Toluene-d8</i>	<i>13.9</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>45-149</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.0</i>		<i>"</i>	<i>13.3</i>		<i>105</i>	<i>45-146</i>		

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/28/16 12:21

Notes and Definitions

- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- 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

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 19, 2016

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Noble - Bates 20 - 22

Enclosed are the results of analyses for samples received by Summit Scientific on 07/13/16 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/19/16 14:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1607086-01	Water	07/13/16 12:40	07/13/16 17:00
BH02	1607086-02	Water	07/13/16 12:50	07/13/16 17:00
BH03	1607086-03	Water	07/13/16 13:00	07/13/16 17:00
BH04	1607086-04	Water	07/13/16 13:30	07/13/16 17:00
BH05	1607086-05	Water	07/13/16 13:15	07/13/16 17:00
BH06	1607086-06	Water	07/13/16 12:50	07/13/16 17:00
BH08	1607086-07	Water	07/13/16 13:30	07/13/16 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: Noble - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/19/16 14:57

Sample Receipt Checklist

S2 Work Order: 1607086

Client: Noble/Tasman Client Project ID: Noble: Bates 20-22

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

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⁾ ?				
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⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?				
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			✓	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			✓	
Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

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

Nakita
Custodian Printed Name

MA
Signature of Initials of Custodian

7/13/16 1745
Date/Time



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/19/16 14:57

BH01
1607086-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/16 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607143	07/16/16	07/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/13/16 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>113 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>97.8 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>102 %</i>	<i>45-146</i>		"	"	"	"	

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 - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/19/16 14:57

BH02
1607086-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/16 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607143	07/16/16	07/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/13/16 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		113 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.3 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: Noble - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/19/16 14:57

BH03
1607086-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/16 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607143	07/16/16	07/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/13/16 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>115 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>97.4 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>101 %</i>	<i>45-146</i>		"	"	"	"	

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 - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/19/16 14:57

BH04
1607086-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/16 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607143	07/16/16	07/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/13/16 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		115 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		100 %	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 - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/19/16 14:57

BH05
1607086-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/16 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607143	07/16/16	07/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/13/16 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>113 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>97.7 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>101 %</i>	<i>45-146</i>		"	"	"	"	

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 - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/19/16 14:57

BH06
1607086-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/16 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607143	07/16/16	07/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/13/16 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>116 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>98.9 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>101 %</i>	<i>45-146</i>		"	"	"	"	

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 - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/19/16 14:57

BH08
1607086-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/16 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607143	07/16/16	07/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/13/16 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		116 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.7 %	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: Noble - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/19/16 14:57

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1607143 - EPA 5030 Water MS

Blank (1607143-BLK1)

Prepared & Analyzed: 07/16/16

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3		107	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		96.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	45-146			

LCS (1607143-BS1)

Prepared & Analyzed: 07/16/16

Benzene	41.3	1.0	ug/l	33.3		124	51-132			
Toluene	39.3	1.0	"	33.3		118	51-138			
Ethylbenzene	45.9	1.0	"	33.1		139	58-146			
m,p-Xylene	81.6	2.0	"	66.5		123	57-144			
o-Xylene	39.0	1.0	"	32.7		120	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.3		108	37-154			
Surrogate: Toluene-d8	13.7		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.9	45-146			

Matrix Spike (1607143-MS1)

Source: 1607072-01

Prepared & Analyzed: 07/16/16

Benzene	43.6	1.0	ug/l	33.3	ND	131	34-141			
Toluene	41.5	1.0	"	33.3	ND	125	27-151			
Ethylbenzene	50.3	1.0	"	33.1	ND	152	29-160			
m,p-Xylene	87.6	2.0	"	66.5	ND	132	20-166			
o-Xylene	42.4	1.0	"	32.7	ND	130	33-159			
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.3		116	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.5	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 - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/19/16 14:57

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 1607143 - EPA 5030 Water MS

Matrix Spike Dup (1607143-MSD1)	Source: 1607072-01			Prepared & Analyzed: 07/16/16						
Benzene	44.5	1.0	ug/l	33.3	ND	134	34-141	2.16	32	
Toluene	42.1	1.0	"	33.3	ND	126	27-151	1.48	25	
Ethylbenzene	51.7	1.0	"	33.1	ND	156	29-160	2.84	50	
m,p-Xylene	90.7	2.0	"	66.5	ND	136	20-166	3.47	36	
o-Xylene	44.0	1.0	"	32.7	ND	135	33-159	3.63	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.6</i>		<i>"</i>	<i>13.3</i>		<i>117</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.2</i>		<i>"</i>	<i>13.3</i>		<i>99.1</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.9</i>	<i>45-146</i>			

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 - Bates 20 - 22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/19/16 14:57

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

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 22, 2016

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Bates 20-22

Enclosed are the results of analyses for samples received by Summit Scientific on 07/15/16 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/22/16 14:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH12@1-2'	1607104-01	Soil	07/15/16 09:40	07/15/16 14:00
BH12	1607104-02	Water	07/15/16 11:10	07/15/16 14:00

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/22/16 14:14

Sample Receipt Checklist

S2 Work Order: 1607104

Client: Tasman Client Project ID: Bates 20-22

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

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

Cooler ID					
Temp (°C)	<u>3.1</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⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.			X	
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
If custody seals are present, are they intact ⁽¹⁾ ?			X	
Are short holding time analytes or samples with HTs due within 48 hours present?			X	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			X	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Murphy
Custodian Printed Name

BB 7.15.16
Signature or initials of Custodian

18:35
Date/Time



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/22/16 14:14

BH12@1-2'
1607104-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/15/16 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1607160	07/18/16	07/18/16	8015M	

Date Sampled: 07/15/16 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		108 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/15/16 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1607159	"	07/18/16	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: 07/15/16 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.5 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/22/16 14:14

BH12
1607104-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/16 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1607161	07/18/16	07/18/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/15/16 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		95.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		100 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.5 %	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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/22/16 14:14

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1607160 - EPA 3550A

Blank (1607160-BLK1)

Prepared & Analyzed: 07/18/16

C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	12.6		"	12.5		101	30-150				

LCS (1607160-BS1)

Prepared & Analyzed: 07/18/16

C10-C28 (DRO)	453	50	mg/kg	499		90.9	73-134				
<i>Surrogate: o-Terphenyl</i>	12.6		"	12.5		101	30-150				

Matrix Spike (1607160-MS1)

Source: 1607099-03

Prepared & Analyzed: 07/18/16

C10-C28 (DRO)	436	50	mg/kg	472	10.8	90.2	50-148				
<i>Surrogate: o-Terphenyl</i>	11.4		"	11.8		96.6	30-150				

Matrix Spike Dup (1607160-MSD1)

Source: 1607099-03

Prepared & Analyzed: 07/18/16

C10-C28 (DRO)	450	50	mg/kg	488	10.8	90.1	50-148	3.21	20		
<i>Surrogate: o-Terphenyl</i>	12.0		"	12.2		98.1	30-150				

Summit Scientific

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



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/22/16 14:14

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 1607159 - EPA 5030 Soil MS

Blank (1607159-BLK1)

Prepared & Analyzed: 07/18/16

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>0.0352</i>		<i>"</i>	<i>0.0400</i>		<i>88.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0375</i>		<i>"</i>	<i>0.0400</i>		<i>93.8</i>	<i>21-167</i>			

LCS (1607159-BS1)

Prepared & Analyzed: 07/18/16

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0943	0.0020	"	0.100		94.3	58-130			
Toluene	0.110	0.0050	"	0.100		110	61-134			
Ethylbenzene	0.116	0.0050	"	0.0992		116	74-139			
m,p-Xylene	0.235	0.010	"	0.200		118	73-137			
o-Xylene	0.110	0.0050	"	0.0980		112	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0374</i>		<i>"</i>	<i>0.0400</i>		<i>93.4</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>96.9</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0377</i>		<i>"</i>	<i>0.0400</i>		<i>94.3</i>	<i>21-167</i>			

Matrix Spike (1607159-MS1)

Source: 1607099-03

Prepared & Analyzed: 07/18/16

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0940	0.0020	"	0.0977	ND	96.2	30-131			
Toluene	0.109	0.0050	"	0.0977	ND	112	30-134			
Ethylbenzene	0.114	0.0050	"	0.0969	ND	117	22-153			
m,p-Xylene	0.228	0.010	"	0.195	ND	117	10-159			
o-Xylene	0.109	0.0050	"	0.0957	ND	114	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0378</i>		<i>"</i>	<i>0.0391</i>		<i>96.7</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0391</i>		<i>99.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0369</i>		<i>"</i>	<i>0.0391</i>		<i>94.4</i>	<i>21-167</i>			

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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/22/16 14:14

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 1607159 - EPA 5030 Soil MS

Matrix Spike Dup (1607159-MSD1)	Source: 1607099-03			Prepared & Analyzed: 07/18/16						
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158			42	
Benzene	0.0930	0.0020	"	0.0954	ND	97.5	30-131	1.02	34	
Toluene	0.107	0.0050	"	0.0954	ND	112	30-134	1.91	30	
Ethylbenzene	0.114	0.0050	"	0.0947	ND	120	22-153	0.150	24	
m,p-Xylene	0.230	0.010	"	0.190	ND	121	10-159	0.953	68	
o-Xylene	0.110	0.0050	"	0.0935	ND	117	31-151	0.411	38	
Surrogate: 1,2-Dichloroethane-d4	0.0360		"	0.0382		94.4	23-173			
Surrogate: Toluene-d8	0.0375		"	0.0382		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0362		"	0.0382		94.8	21-167			

Batch 1607161 - EPA 5030 Water MS

Blank (1607161-BLK1)	Prepared & Analyzed: 07/18/16									
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.3		106	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.9	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.0	45-146			

LCS (1607161-BS1)	Prepared & Analyzed: 07/18/16									
Benzene	36.6	1.0	ug/l	33.3		110	51-132			
Toluene	34.4	1.0	"	33.3		103	51-138			
Ethylbenzene	34.2	1.0	"	33.1		104	58-146			
m,p-Xylene	62.7	2.0	"	66.5		94.2	57-144			
o-Xylene	29.9	1.0	"	32.7		91.4	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.3		104	37-154			
Surrogate: Toluene-d8	15.6		"	13.3		117	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/22/16 14:14

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 1607161 - EPA 5030 Water MS

Matrix Spike (1607161-MS1)	Source: 1607101-01			Prepared & Analyzed: 07/18/16							
Benzene	40.8	1.0	ug/l	33.3	ND	122	34-141				
Toluene	39.2	1.0	"	33.3	ND	117	27-151				
Ethylbenzene	42.4	1.0	"	33.1	ND	128	29-160				
m,p-Xylene	76.4	2.0	"	66.5	ND	115	20-166				
o-Xylene	36.4	1.0	"	32.7	ND	112	33-159				
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.3		110	37-154				
Surrogate: Toluene-d8	14.4		"	13.3		108	45-149				
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.0	45-146				

Matrix Spike Dup (1607161-MSD1)	Source: 1607101-01			Prepared & Analyzed: 07/18/16							
Benzene	44.7	1.0	ug/l	33.3	ND	134	34-141	9.11	32		
Toluene	42.4	1.0	"	33.3	ND	127	27-151	7.90	25		
Ethylbenzene	49.2	1.0	"	33.1	ND	149	29-160	14.7	50		
m,p-Xylene	86.6	2.0	"	66.5	ND	130	20-166	12.5	36		
o-Xylene	41.6	1.0	"	32.7	ND	127	33-159	13.3	26		
Surrogate: 1,2-Dichloroethane-d4	15.6		"	13.3		117	37-154				
Surrogate: Toluene-d8	13.7		"	13.3		103	45-149				
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		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: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/22/16 14:14

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



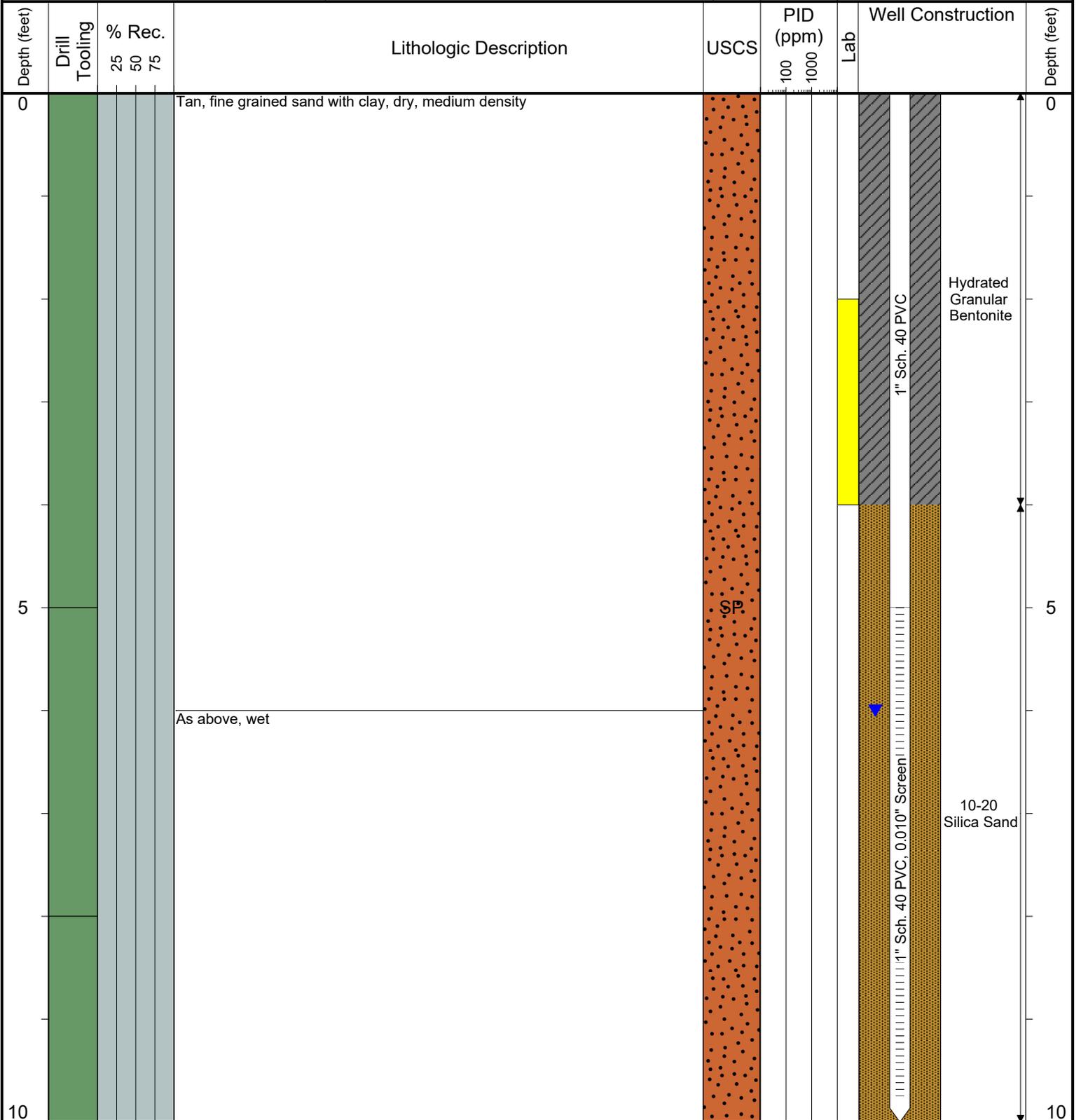
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 10
 DEPTH TO WATER (FT. BGS): 6

Bates 20-22 Flowline Release

BORING / WELL ID: BH01

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479439129465
 LONGITUDE (DEGREES): -104.80827953784
 CASING ELEVATION (FT. AMSL): 4716.21
 GROUND ELEVATION (FT. AMSL): 4713.37



Drilling / Sample Method:

- Macro-Core
- CME Continuous Core

Laboratory Sample Types:

- Hand Auger
- Hollow Stem Auger
- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab



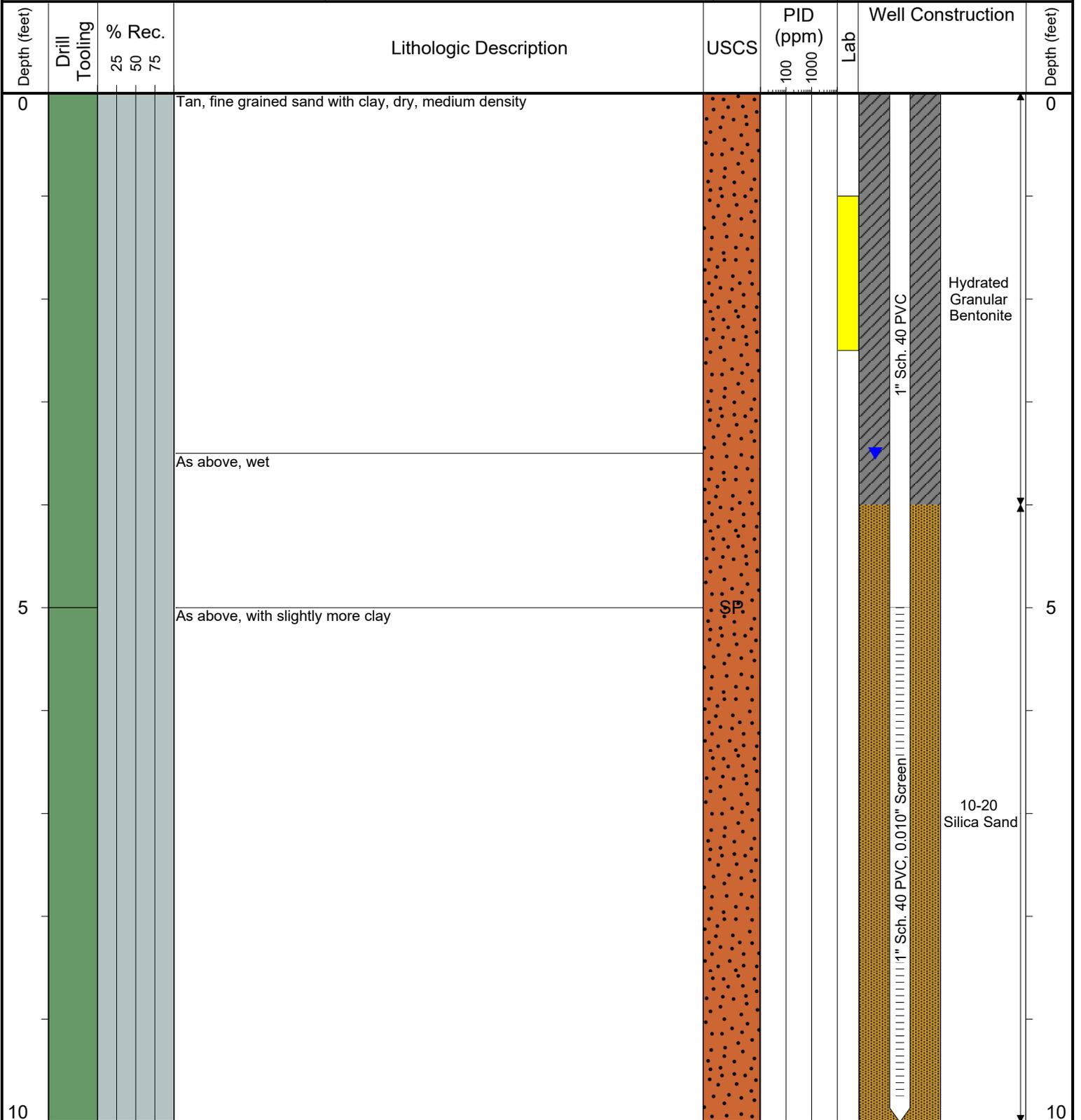
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 10
 DEPTH TO WATER (FT. BGS): 3.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH02

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479411325618
 LONGITUDE (DEGREES): -104.80827035549
 CASING ELEVATION (FT. AMSL): 4715.15
 GROUND ELEVATION (FT. AMSL): 4713.35



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



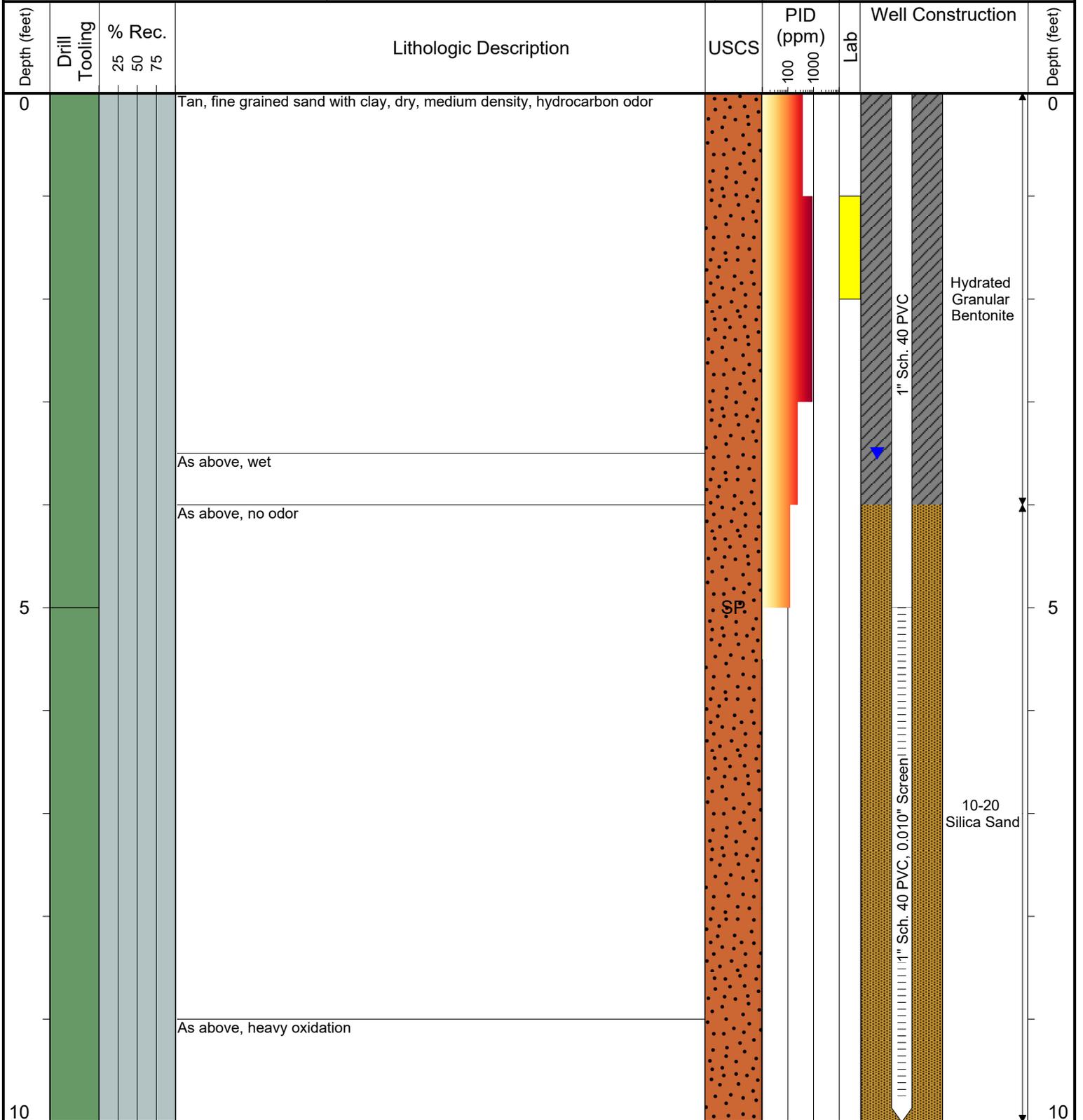
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 10
 DEPTH TO WATER (FT. BGS): 3.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH03

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479411022807
 LONGITUDE (DEGREES): -104.80820722867
 CASING ELEVATION (FT. AMSL): 4714.36
 GROUND ELEVATION (FT. AMSL): 4712.78



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



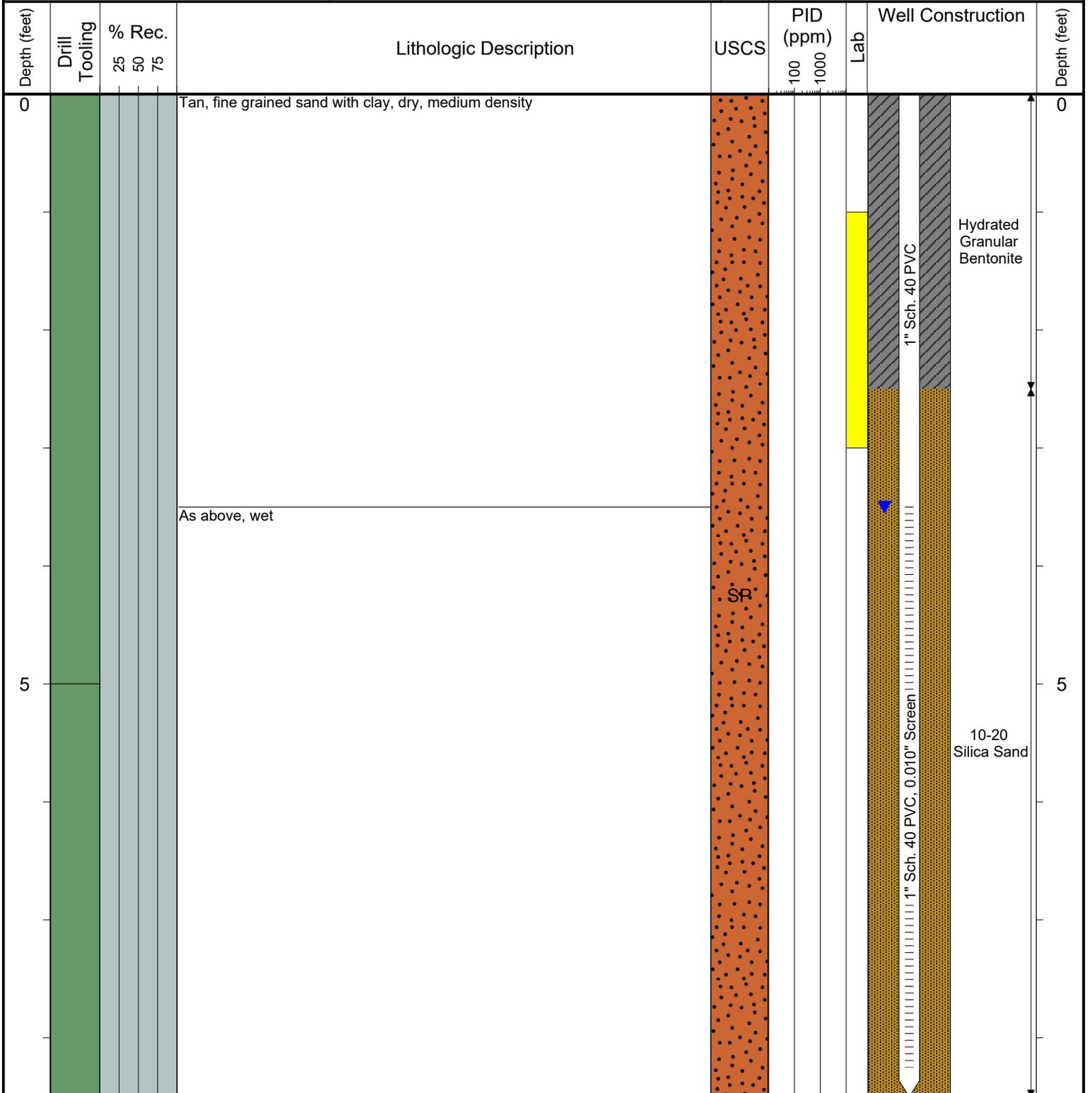
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 8.5
 DEPTH TO WATER (FT. BGS): 3.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH04

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479431942337
 LONGITUDE (DEGREES): -104.8081369273
 CASING ELEVATION (FT. AMSL): 4714.35
 GROUND ELEVATION (FT. AMSL): 4712.69



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



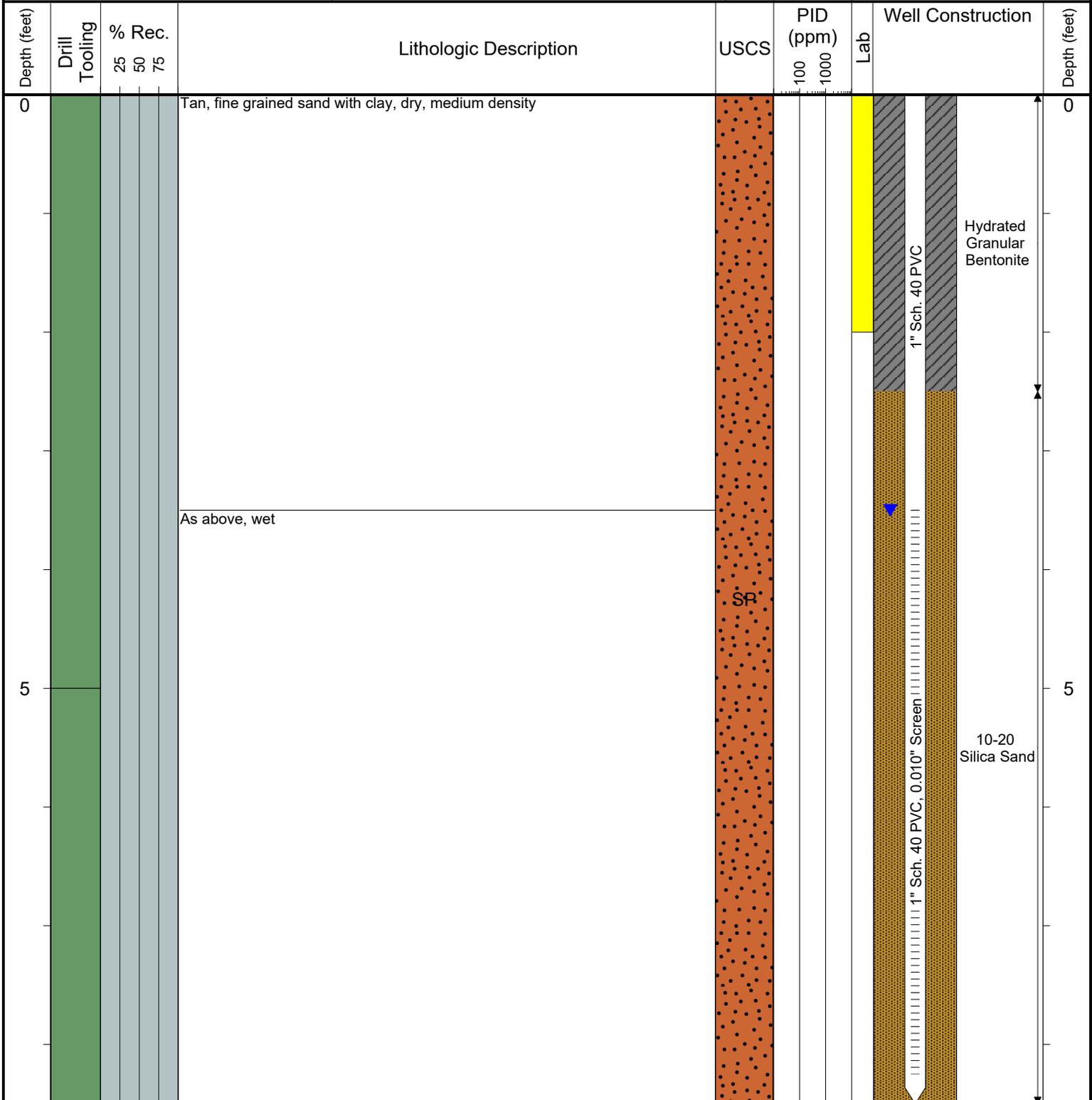
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 8.5
 DEPTH TO WATER (FT. BGS): 3.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH05

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479373245117
 LONGITUDE (DEGREES): -104.80814560184
 CASING ELEVATION (FT. AMSL): 4714.4
 GROUND ELEVATION (FT. AMSL): 4712.7



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



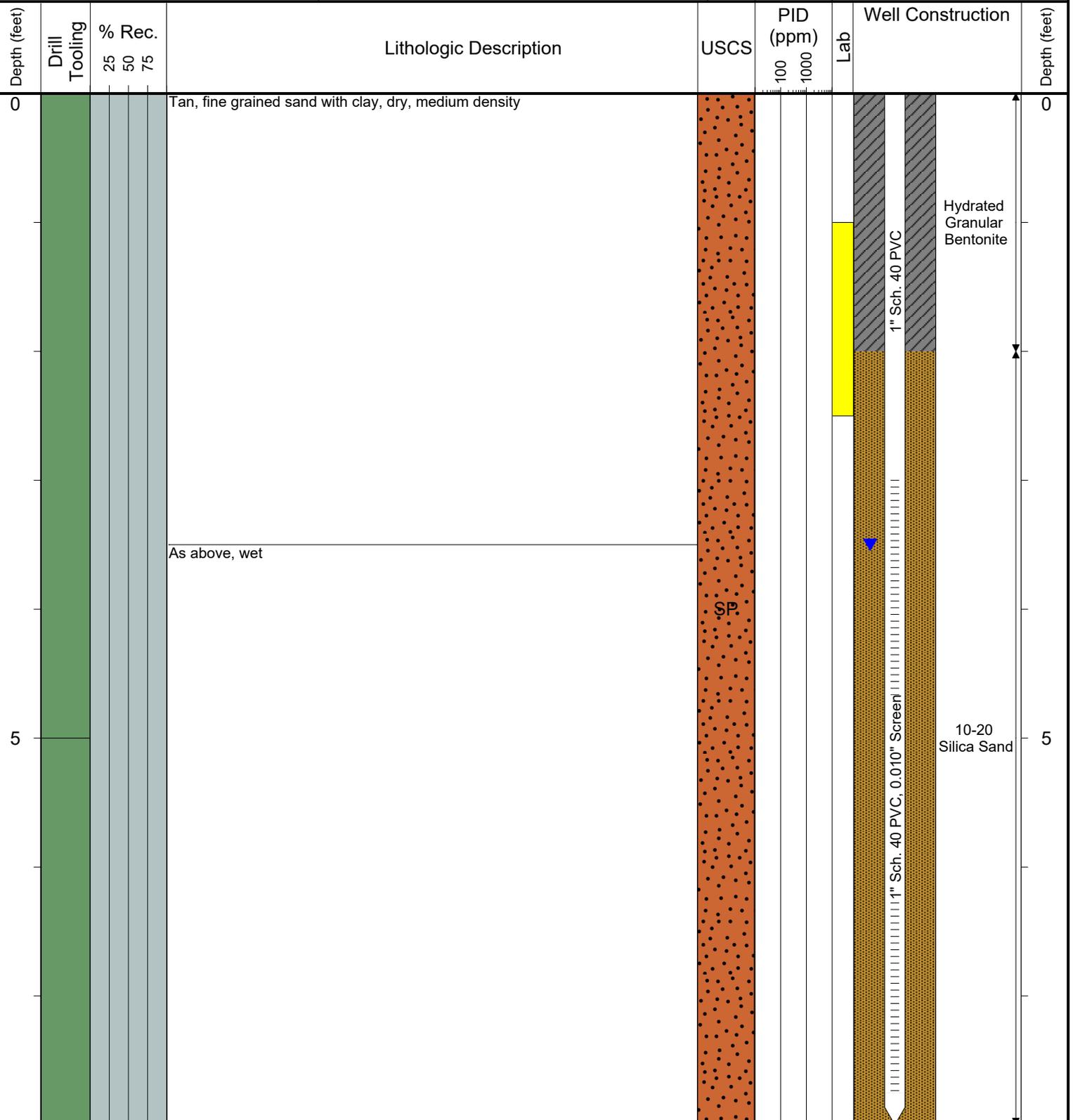
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 8
 DEPTH TO WATER (FT. BGS): 3.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH06

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479356402297
 LONGITUDE (DEGREES): -104.80819704865
 CASING ELEVATION (FT. AMSL): 4714.67
 GROUND ELEVATION (FT. AMSL): 4712.8



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



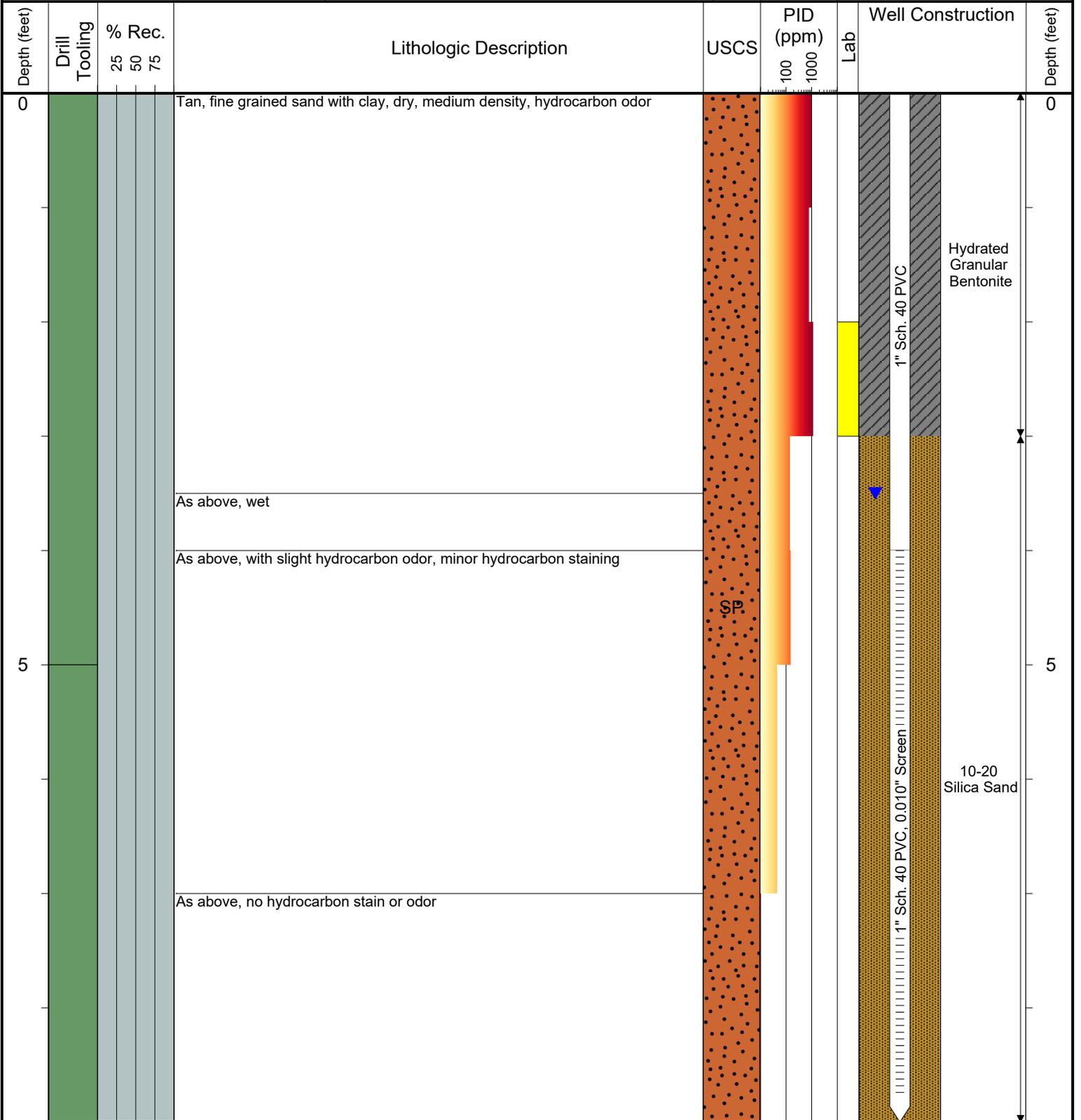
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 9
 DEPTH TO WATER (FT. BGS): 3.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH07

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.47943438165
 LONGITUDE (DEGREES): -104.80820950211
 CASING ELEVATION (FT. AMSL): 4716.1
 GROUND ELEVATION (FT. AMSL): 4712.79



Drilling / Sample Method:

- Macro-Core
- CME Continuous Core

Laboratory Sample Types:

- Hand Auger
- Hollow Stem Auger
- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab



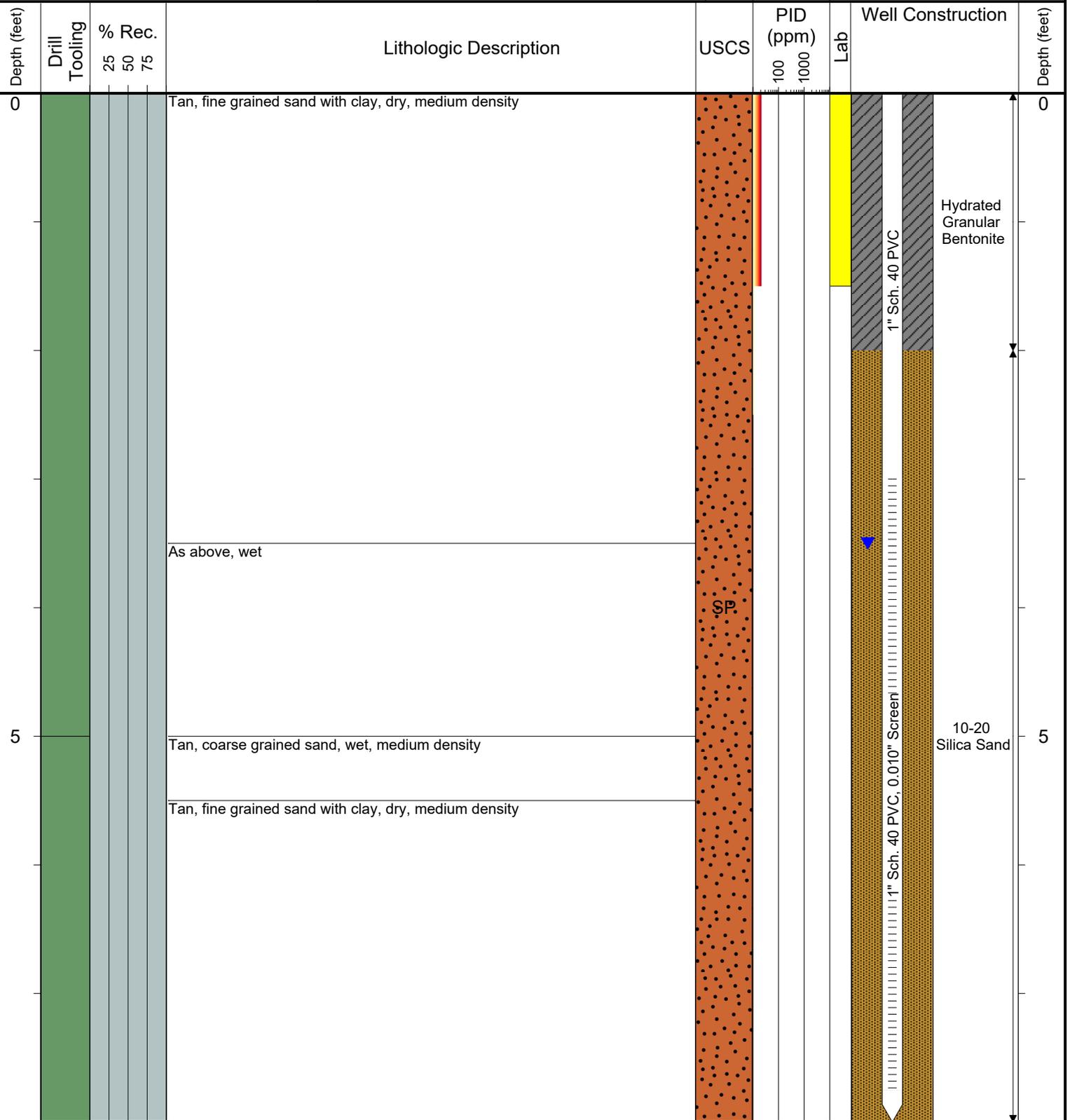
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 8
 DEPTH TO WATER (FT. BGS): 3.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH08

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479469462035
 LONGITUDE (DEGREES): -104.80818124426
 CASING ELEVATION (FT. AMSL): 4714.24
 GROUND ELEVATION (FT. AMSL): 4712.81



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: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 5
 DEPTH TO WATER (FT. BGS): 4

Bates 20-22 Flowline Release

BORING / WELL ID: BH09

LOCATION: Weld County, CO
 LATITUDE (DEGREES): NS
 LONGITUDE (DEGREES): NS
 CASING ELEVATION (FT. AMSL): NS
 GROUND ELEVATION (FT. AMSL): NS

Depth (feet)	Drill Tooling	% Rec. 25 50 75	Lithologic Description	USCS	PID (ppm)		Lab	Well Construction	Depth (feet)
					100	1000			
0			Tan, fine grained sand with clay, dry, medium density	SP				No Well Installed	0
5			As above, wet						5

Drilling / Sample Method:

- Macro-Core
- CME Continuous Core

Laboratory Sample Types:

- Hand Auger
- Hollow Stem Auger
- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab



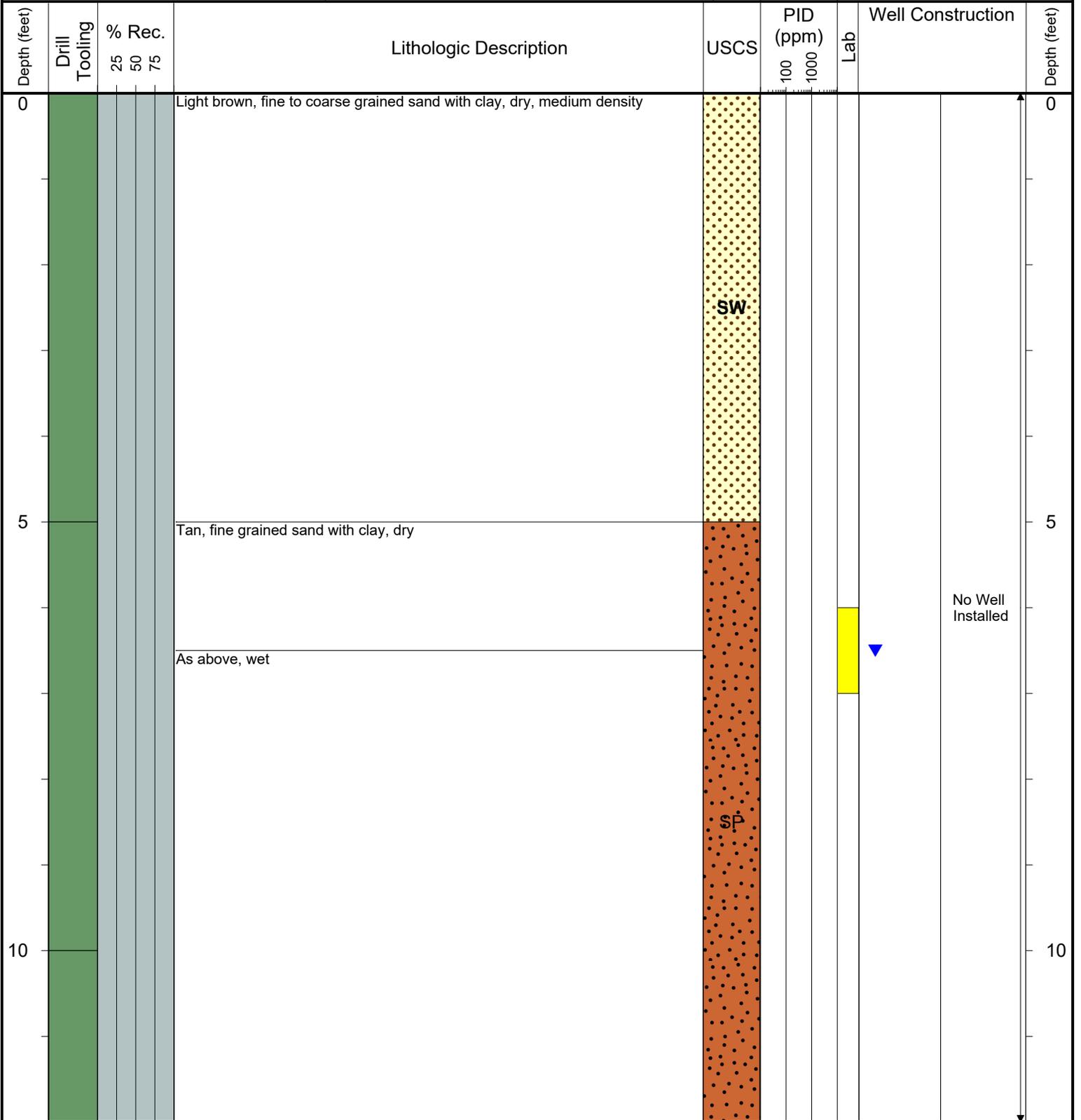
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 12
 DEPTH TO WATER (FT. BGS): 6.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH10

LOCATION: Weld County, CO
 LATITUDE (DEGREES): NS
 LONGITUDE (DEGREES): NS
 CASING ELEVATION (FT. AMSL): NS
 GROUND ELEVATION (FT. AMSL): NS



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



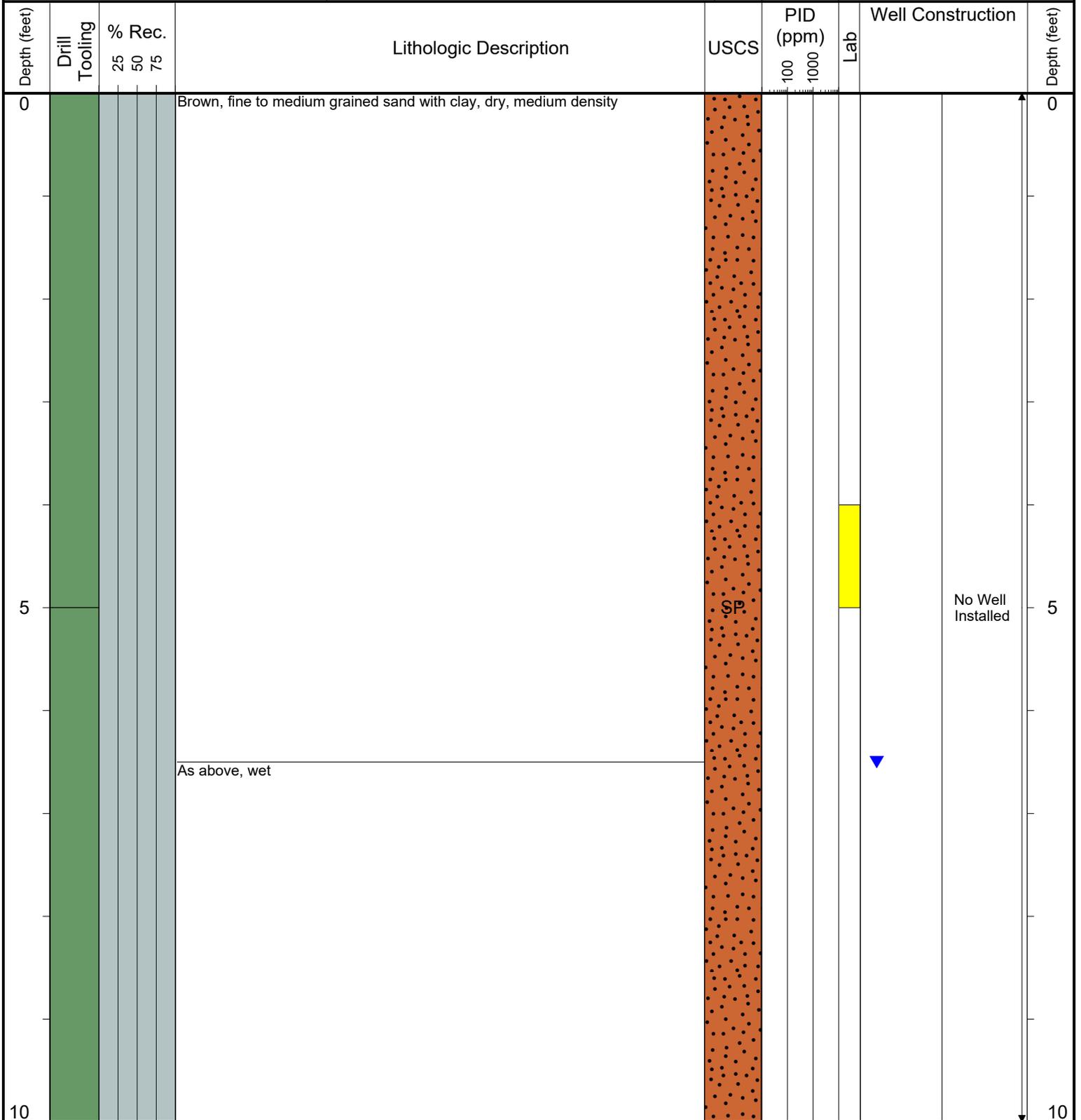
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Jake Whritenour
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Site Services Drilling
 DRILLING EQUIPMENT: Geo Probe
 DRILL BIT SIZE (INCHES): 2.375
 DATE STARTED - COMPLETED: 3/22/16
 TOTAL BORING DEPTH (FT. BGS): 10
 DEPTH TO WATER (FT. BGS): 6.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH11

LOCATION: Weld County, CO
 LATITUDE (DEGREES): NS
 LONGITUDE (DEGREES): NS
 CASING ELEVATION (FT. AMSL): NS
 GROUND ELEVATION (FT. AMSL): NS



Drilling / Sample Method:

- [Green Box] Macro-Core
- [Dark Green Box] CME Continuous Core

- [Light Green Box] Hand Auger
- [Blue Box] Hollow Stem Auger

Laboratory Sample Types:

- [Purple Box] Geotechnical Lab
- [Yellow Box] Analytical Chemistry Lab
- [Blue/Yellow Box] Geotechnical & Analytical Chemistry Lab



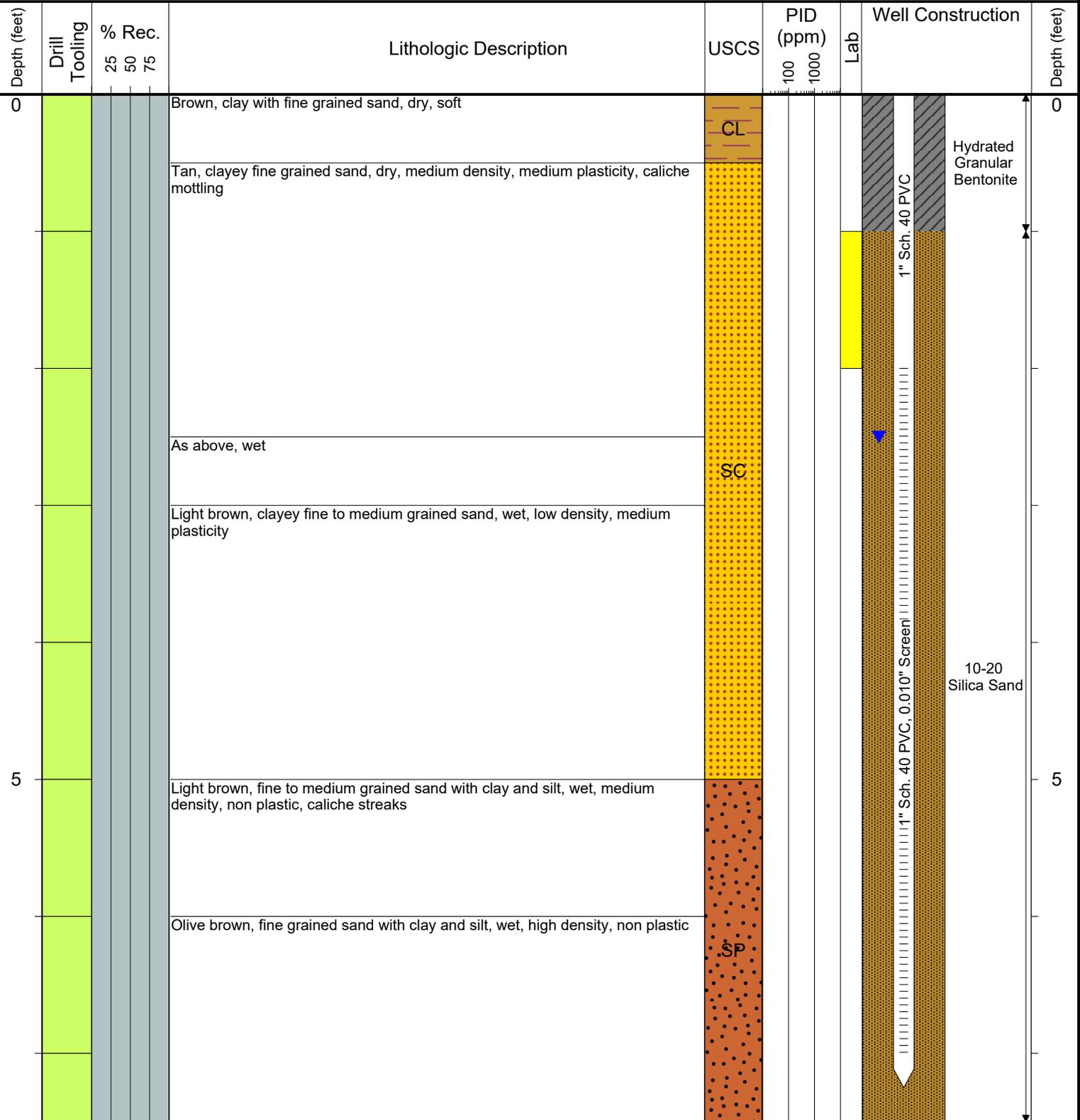
6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.
 LOGGED BY: Eric Siegel, P.G.
 PROJECT MANAGER: Brandon Bruns, P.E.
 DRILLING CONTRACTOR: Tasman Geosciences, Inc.
 DRILLING EQUIPMENT: Hand Auger
 DRILL BIT SIZE (INCHES): 2.5
 DATE STARTED - COMPLETED: 7/15/16
 TOTAL BORING DEPTH (FT. BGS): 7.5
 DEPTH TO WATER (FT. BGS): 2.5

Bates 20-22 Flowline Release

BORING / WELL ID: BH12

LOCATION: Weld County, CO
 LATITUDE (DEGREES): 40.479481681665
 LONGITUDE (DEGREES): -104.80822146966
 CASING ELEVATION (FT. AMSL): 4715.58
 GROUND ELEVATION (FT. AMSL): 4712.77



Drilling / Sample Method:

- Macro-Core
- Hand Auger
- CME Continuous Core
- Hollow Stem Auger

Laboratory Sample Types:

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