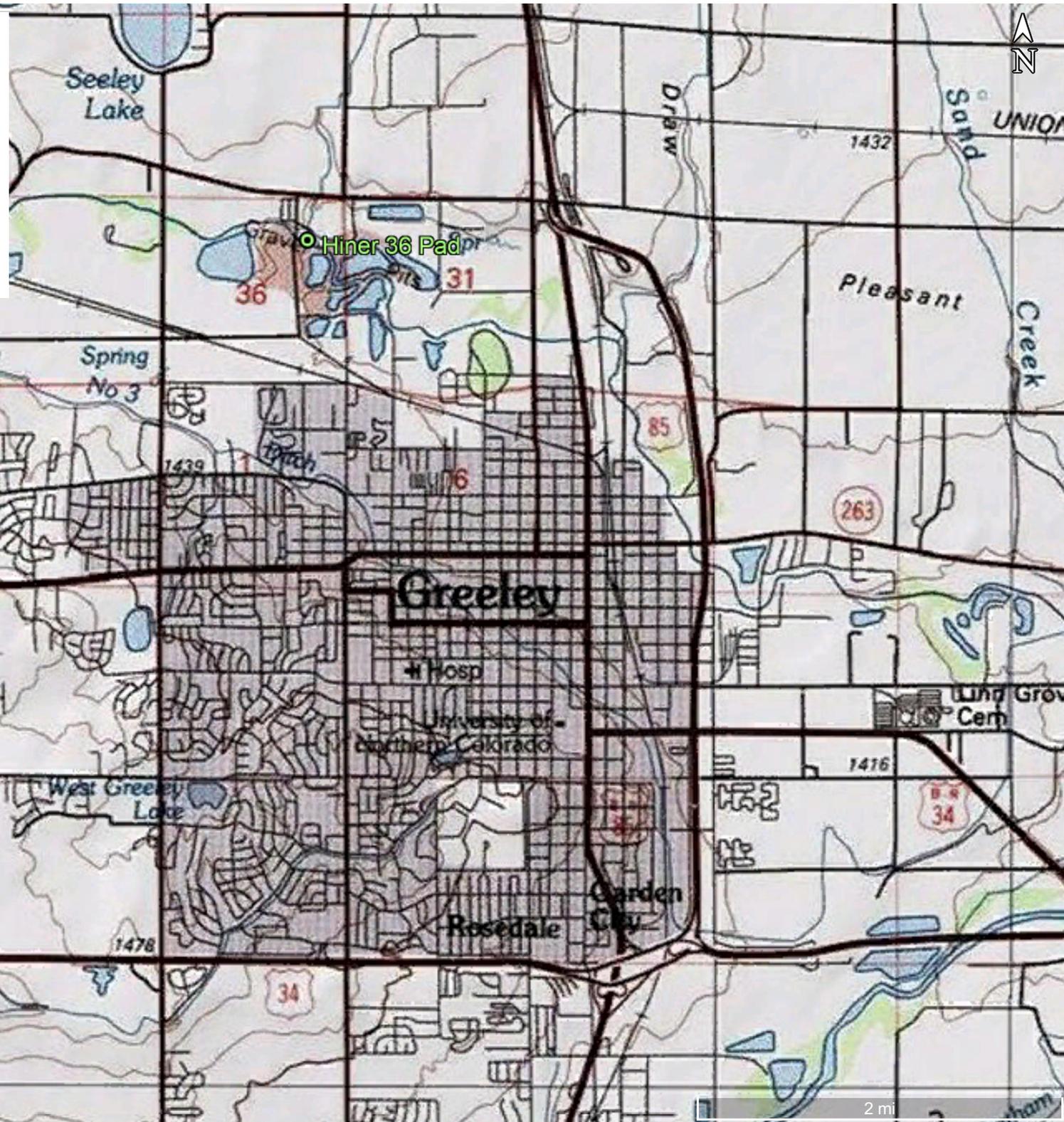




Topographic Location  
Map  
"Hiner Tank Battery"





**Extraction Oil & Gas  
Hiner 36 Tank Battery  
COGCC Location ID: 446538  
Temporary Monitoring Well Layout &  
GW Elevations for the  
11/5/2019 Sampling Event**

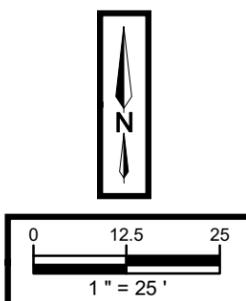
Legal Description: NENE, Sec 36, T6N R66W  
County: Weld  
Land Use: Non-Cropland  
Topography: Not Available  
Run-Off Risk: Low  
Soil Type: Aquolls and Aquents  
Receiving Waters: Cache la Poudre River



- BH01**  
80.60-ft Temp. Monitoring Well Location & Relative GW Elevation
- Estimated Groundwater Contour
- Estimated Groundwater Flow Direction

\* Sample ID in Purple font indicates a regulatory exceedance.

\* Concentration Units in ug/L.  
\* ND - Non-Detect



Sample ID	Latitude NAD83	Longitude NAD83
BH01	40.449073	-104.719683
BH02	40.448991	-104.720012
BH03	40.448818	-104.719963
BH04	40.448891	-104.719792
BH05	40.448684	-104.719802
BH06	40.448807	-104.719347
BH07	40.449160	-104.719593

Spatial data collected for this project was acquired using a GPS with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. To accurately reflect field conditions, illustrated data may have been manually corrected in order to fit with the aerial imagery reference points and other collected data points.



## Laboratory Results Summary Table - Groundwater Hiner 36

			Organic Compounds (µg/L)			
COGCC Allowable Concentration (Water)			5	1000	700	10000
Location	Sample Date	Sample ID	Benzene	Toluene	Ethylbenzene	Xylenes - total
Hiner 36 Pad	11/5/19	BH01	20	<1.0	<1.0	<2.0
Hiner 36 Pad	11/5/19	BH02	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	11/5/19	BH03	3	<1.0	<1.0	<2.0
Hiner 36 Pad	11/5/19	BH04	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	11/5/19	BH05	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	11/5/19	BH06	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	11/5/19	BH07	2.2	<1.0	<1.0	<2.0

**Attachment A**

**Laboratory Analytical Report**

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 13, 2019

Maggie Graham

Extraction Oil&Gas

370 17th Street Suite 5300

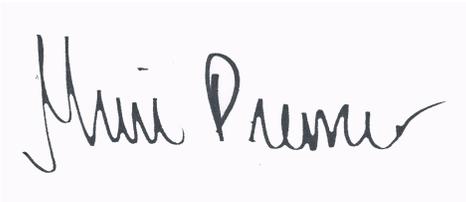
Denver, CO 80202

RE: Hiner 36

Work Order # 1911053

Enclosed are the results of analyses for samples received by Summit Scientific on 11/05/19 17:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer For Paul Shrewsbury

President



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
11/13/19 17:03

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1911053-01	Water	11/05/19 15:00	11/05/19 17:55
BH02	1911053-02	Water	11/05/19 13:05	11/05/19 17:55
BH03	1911053-03	Water	11/05/19 14:30	11/05/19 17:55
BH04	1911053-04	Water	11/05/19 12:50	11/05/19 17:55
BH05	1911053-05	Water	11/05/19 13:30	11/05/19 17:55
BH06	1911053-06	Water	11/05/19 12:00	11/05/19 17:55
BH07	1911053-07	Water	11/05/19 14:00	11/05/19 17:55

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.*

1911053

# Summit Scientific

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client: APEX Companies, LLC  
Address: 176 Cole Blvd. Suite 250  
City/State/Zip: Lakewood, Colorado 80101  
Phone: 720-501-5065 Fax:  
Sampler Name: Ryan Finley

Project Manager: Maggie Graham 720-501-5065; 907-538-7699c  
E-Mail: DenverRemediation@ApexCos.onmicrosoft.com  
Project Name: Hiner 36 battery  
Project Number: TBD

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix		Analyze For:						Special Instructions		
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)							
BH01	11/5/19	1500	3	X				X										Call Maggie Graham with questions
BH02	↓	1305	↓	↓				↓										
BH03	↓	1430	↓	↓				↓										
BH04	↓	1250	↓	↓				↓										
BH05	↓	1330	↓	↓				↓										
BH06	↓	1200	↓	↓				↓										
BH07	↓	1400	↓	↓				↓										
Relinquished by: <u>Ryan Finley</u> Date/Time: <u>11/5/19 1755</u>				Received by: <u>[Signature]</u> Date/Time: <u>11-5-19 1755</u>				Turn Around Time (Check)						Notes				
Relinquished by:				Received by:				Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/>						Circle applicable regulatory agency: <u>COGCC/CDPHE</u>				
Relinquished by:				Received in Lab by:				24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>										
Relinquished by:				Received in Lab by:				48 Hours <input type="checkbox"/>						Client Name: <u>XOG</u>				
								Sample Integrity: Temperature Upon Receipt: <u>17.4°</u>										
								Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>										

**Sample Receipt Checklist**

S2 Work Order 1911053

Client: ApeX/XOG Client Project ID: Hiner 36 Battery

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

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

Temp (°C)	17.4
-----------	------

Thermometer ID: 61857155-K

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

AT  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

11-5-18 17:55  
Date/Time



Extraction Oil&Gas  
 370 17th Street Suite 5300  
 Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
 Project Manager: Maggie Graham

**Reported:**  
 11/13/19 17:03

**BH01**  
**1911053-01 (Water)**

**Summit Scientific**

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

Date Sampled: **11/05/19 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>20</b>	1.0	ug/l	1	1911059	11/06/19	11/13/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/05/19 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		79.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.7 %	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.*



Extraction Oil&Gas  
 370 17th Street Suite 5300  
 Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
 Project Manager: Maggie Graham

**Reported:**  
 11/13/19 17:03

**BH02**  
**1911053-02 (Water)**

**Summit Scientific**

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

Date Sampled: **11/05/19 13:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1911059	11/06/19	11/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/05/19 13:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		122 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		79.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %		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.*



Extraction Oil&Gas  
 370 17th Street Suite 5300  
 Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
 Project Manager: Maggie Graham

**Reported:**  
 11/13/19 17:03

**BH03**  
**1911053-03 (Water)**

**Summit Scientific**

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

Date Sampled: **11/05/19 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>3.0</b>	1.0		ug/l	1	1911059	11/06/19	11/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/05/19 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		120 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		76.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %		21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
11/13/19 17:03

**BH04**  
**1911053-04 (Water)**

**Summit Scientific**

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

Date Sampled: **11/05/19 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1911059	11/06/19	11/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/05/19 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		121 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		76.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.4 %		21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
 370 17th Street Suite 5300  
 Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
 Project Manager: Maggie Graham

**Reported:**  
 11/13/19 17:03

**BH05**  
**1911053-05 (Water)**

**Summit Scientific**

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

Date Sampled: **11/05/19 13:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1911059	11/06/19	11/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/05/19 13:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		136 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		78.6 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %		21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
11/13/19 17:03

**BH06**  
**1911053-06 (Water)**

**Summit Scientific**

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

Date Sampled: **11/05/19 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1911059	11/06/19	11/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/05/19 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		134 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		80.2 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.0 %		21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
 370 17th Street Suite 5300  
 Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
 Project Manager: Maggie Graham

**Reported:**  
 11/13/19 17:03

**BH07**  
**1911053-07 (Water)**

**Summit Scientific**

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

Date Sampled: **11/05/19 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>2.2</b>	1.0		ug/l	1	1911059	11/06/19	11/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/05/19 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		128 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		75.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %		21-167		"	"	"	"	

Summit Scientific



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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
11/13/19 17:03

**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 1911059 - EPA 5030 Water MS**

**Blank (1911059-BLK1)**

Prepared: 11/06/19 Analyzed: 11/12/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.3		112	23-173			
Surrogate: Toluene-d8	9.60		"	13.3		72.0	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.4	21-167			

**LCS (1911059-BS1)**

Prepared: 11/06/19 Analyzed: 11/12/19

Benzene	36.2	1.0	ug/l	33.3		109	51-132			
Toluene	26.6	1.0	"	33.3		79.9	51-138			
Ethylbenzene	35.7	1.0	"	33.3		107	58-146			
m,p-Xylene	70.0	2.0	"	66.7		105	57-144			
o-Xylene	33.9	1.0	"	33.3		102	53-146			
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.3		116	23-173			
Surrogate: Toluene-d8	9.82		"	13.3		73.7	20-170			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.4	21-167			

**Matrix Spike (1911059-MS1)**

Source: 1911051-01

Prepared: 11/06/19 Analyzed: 11/12/19

Benzene	39.3	1.0	ug/l	33.3	ND	118	34-141			
Toluene	29.1	1.0	"	33.3	ND	87.2	27-151			
Ethylbenzene	36.4	1.0	"	33.3	ND	109	29-160			
m,p-Xylene	71.0	2.0	"	66.7	ND	107	20-166			
o-Xylene	34.6	1.0	"	33.3	ND	104	33-159			
Surrogate: 1,2-Dichloroethane-d4	17.3		"	13.3		130	23-173			
Surrogate: Toluene-d8	10.8		"	13.3		81.0	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.5	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.



Extraction Oil&Gas  
 370 17th Street Suite 5300  
 Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
 Project Manager: Maggie Graham

**Reported:**  
 11/13/19 17:03

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

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

**Batch 1911059 - EPA 5030 Water MS**

Matrix Spike Dup (1911059-MSD1)	Source: 1911051-01			Prepared: 11/06/19 Analyzed: 11/12/19					
Benzene	35.2	1.0	ug/l	33.3	ND	106	34-141	11.0	30
Toluene	28.4	1.0	"	33.3	ND	85.2	27-151	2.33	30
Ethylbenzene	34.5	1.0	"	33.3	ND	103	29-160	5.50	30
m,p-Xylene	67.8	2.0	"	66.7	ND	102	20-166	4.68	30
o-Xylene	33.4	1.0	"	33.3	ND	100	33-159	3.35	30
Surrogate: 1,2-Dichloroethane-d4	15.9		"	13.3		119	23-173		
Surrogate: Toluene-d8	10.7		"	13.3		80.6	20-170		
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		93.6	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.*



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36

Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
11/13/19 17:03

### 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

**Attachment B**

**Boring Logs**



# SOIL BORING LOG

← Boring Location Sketch

Project Number 744.1902.1  
446538

Boring Number BH-01

Sheet 1 of 1

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 6/10/19 Water Level ~ 6' Start 1100 Finish 1120 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6"/6"/6"/6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5				6"	2' - Clayey sand and gravel, stained grey. moist from potholing etc odor	GC		1.5 490	5
10				N/A	4' same as above less clayey, etc odor	SP		6.5	10
15					6-10 poorly graded sands loose, saturated, stained slight odor	GP		1.4 1.1	15
20					10-13 poorly graded sand with gravels, loose, no staining, coarse sands	SP		50	20
25					13-15 poorly graded sand, stained, fine to medium sands loose				25
30									30
35									35

Total Depth(s) =  
151

Soil Sample(s): BH01 @ 4' 0920 Rationale client request  
BH01 @ 13.5-14' 1120

Additional Information:



# SOIL BORING LOG

← Boring Location Sketch

Project Number 744.1902.1  
446538

Boring Number BH02

Sheet 1 of 1

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 6/10/19 Water Level ~ 5' Start 1130 Finish 1150 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6" 6" 6" 6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
0-2					2' clayey sand and gravel, dark brown, moist from potholing	GP		0.5	
2-4					4' same as above, less clayey. Hc odor.			520	5
4-6					6-12 poorly graded sands and gravel stained from 8-10' with Hc odor			21.9	
6-8								49.9	10
8-10								5.7	
10-12								110	
12-15					12-15 same as above less gravels, coarse sands. Stained from 13.5-14.5.			15	15

Total Depth(s) = 15

Soil Sample(s): BH02 @ 4'  
0940  
1140 BH02 @ 8-8.5'

Rationale client request

Additional Information:



# SOIL BORING LOG

← Boring Location Sketch

Project Number 744.1902.1 446538	Boring Number <b>BH03</b>	Sheet <u>1</u> of <u>1</u>
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Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO  
 Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro  
 Date 6/10/19 Water Level 25 Start 1215 Finish 1230 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6" 6" 6" 6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
0-5					2' Clayey sand and gravel grey, moist from potholing.			1.2 <	
5-6					4' Same as above, less clayey, HC odor			280 <	5
6-8.5					6-8.5 same as above			37.3 <	
8.5-13.5					staining 6-13.5'			18.2 <	10
13.5-15					8.5-15 poorly graded sands and gravels coarsening downward			94.9 <	
15-15.5								367 <	15
15.5-15.5								12.4 <	

Total Depth(s) = <b>15'</b>	Soil Sample(s): <b>1030 BH03 @ 4'</b> <b>1215 BH03 @ 13.5-14'</b>	Rationale <i>client Request</i>	Additional Information:
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# SOIL BORING LOG

← Boring Location Sketch

Project Number 744.1902.1 446538	Boring Number BH04	Sheet 1 of 1
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Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO  
 Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro  
 Date 6/10/19 Water Level ~5 Start 1200 Finish 1215 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6"/6"/6"/6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
0-5				Pathhole to bl	2' clayey sand and gravel, moist from potholing. NO HC odor	GC		0.5 <	
5-10					4' same as above, less clayey, no stain/odor.			3.8 <	5
10-15				N/A	6-15' poorly graded sands with gravel's, saturated stained from 6-12', loose, sands coarser with depth			10.4 <	
15-20								6.7 <	10
20-25								4.6 <	
25-30								1.1 <	15
30-35									
35-40									

Total Depth(s) = <u>151</u>	Soil Sample(s): <u>BH04 @ 6-8' 1215'</u>	Rationale <u>client request</u>	Additional Information:
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# WELL CONSTRUCTION LOG

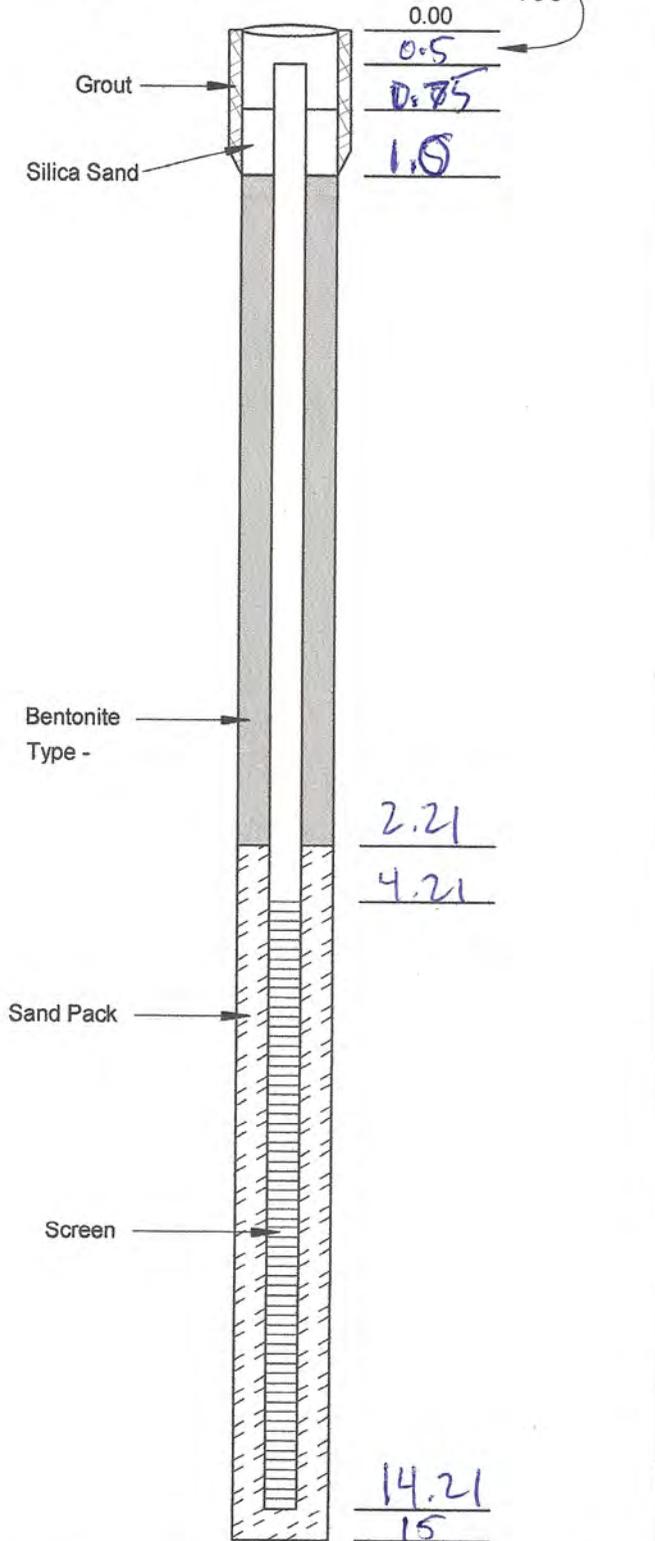
## Well Completion Detail

Project 744.1902.1  
Number 446538

Well Number B103

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



## Drilling Summary

Total Depth of Hole: 15'

Hole Diameter: 2.25

Drilling Company: Drill Pro

Driller: Ron

Rig Type: Direct Push

Bits: Solid Core

Geologist: D. Puchrik

## Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	<u>6/10/19</u>	<u>1215</u>	<u>6/10/19</u>	<u>1230</u>
Well Completion:	<u>6/10/19</u>	<u>1230</u>	<u>6/10/19</u>	<u>1240</u>
Grouting:	<u>6/10/19</u>	<u>1240</u>	<u>6/10/19</u>	<u>1250</u>

## Depth to Water (Below TOC)

Depth: 8.71 Date: 6/10/19 Time: 1350

## Well Construction Materials

	Grout	Seals	Filter
Quantity:		<u>50</u>	<u>50</u>
Type:		<u>bent</u>	<u>10/20</u>
		Screen	
Size:	<u>10'</u>	Config.: <u>10 Slot</u>	
Area/Ft.:		Comp.: <u>PVC</u>	
Inside Diam.:	<u>1.49</u>	Outside Diam.: <u>Sch 40</u>	

## Comments

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\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 13.71



# WELL CONSTRUCTION LOG

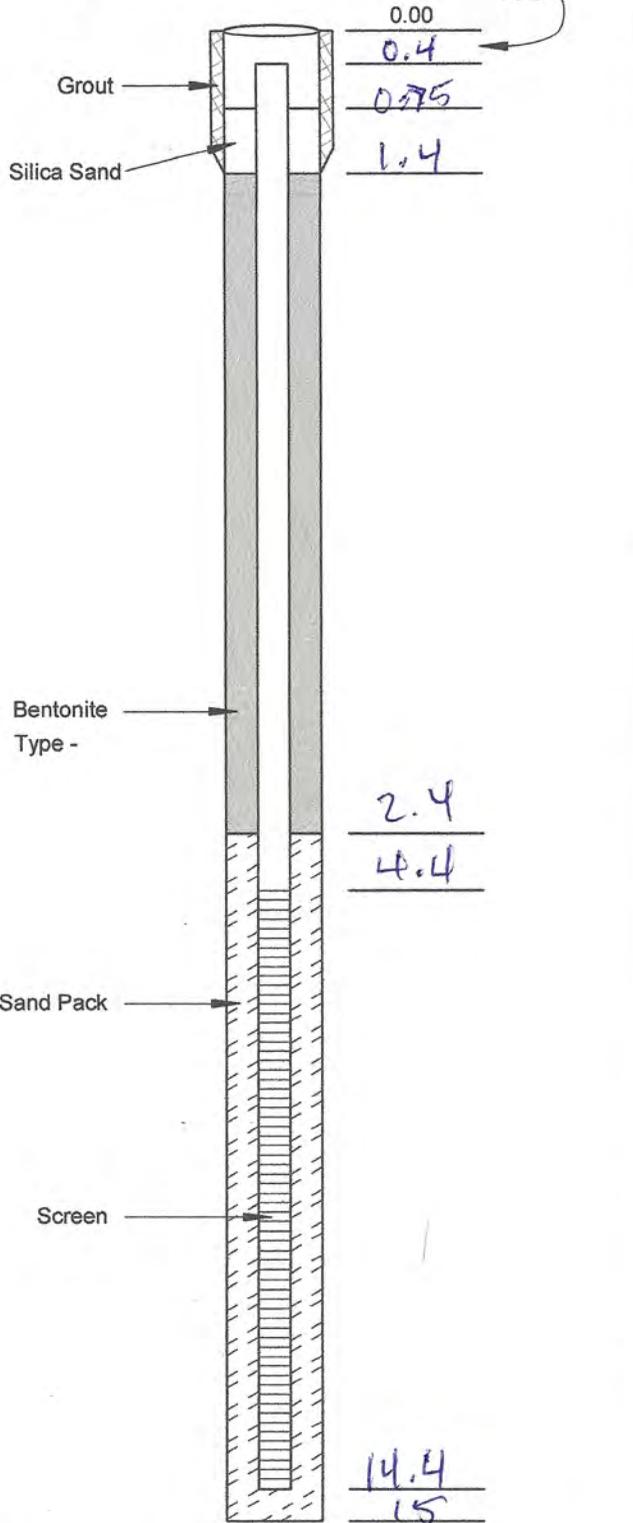
Project 744.1902.1  
Number 446538

Well Number B1404

## Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



## Drilling Summary

Total Depth of Hole: 15  
Hole Diameter: 2.25  
Drilling Company: Drill Pro  
Driller: Ron  
Rig Type: Direct Push  
Bits: Solid Core  
Geologist: D. Puchrik

## Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	6/10/19	1200	6/10/19	1245
Well Completion:	6/10/19	1215	6/10/19	1230
Grouting:	6/10/19	1230	6/10/19	1245

## Depth to Water (Below TOC)

Depth: 8.26 Date: 6/10/19 Time: 1430

## Well Construction Materials

	Grout	Seals	Filter
Quantity:		<u>50</u>	<u>50</u>
Type:		<u>best</u>	<u>10/20</u>
	Screen		
Size:	<u>10'</u>	Config.: <u>10 Slot</u>	
Area/Ft.:		Comp.: <u>PVC</u>	
Inside Diam.:	<u>4"</u>	Outside Diam.: <u>Sch 40</u>	

## Comments

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\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 14.00



# SOIL BORING LOG

← Boring Location Sketch

Project Number 744.1902.1 446538  
 Boring Number BH05  
 Sheet 1 of 1

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 7/9/19 Water Level ~14' Start 1400 Finish 1415 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6" 6" 6" 6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5				N/A	Pothole to 6' 0-3.5' pebbles, cobbles No recovery with hand auger. 4'-6.5' brown silty sand with Fe/CaCO3, slightly moist, no stain/no odor 6.5'-11" dark brown clay with CaCO3, moist stiff, no stain/odor 11'-12' poorly graded gravels with sand. 12'-14' same as 14'-20' same as except saturated, limited staining at 14'	5m		N/A 0.8	5
10								2.1 0.3	10
15							<del>X</del>	2.4	15
20								1.1	20
25									25
30									30
35									35

Total Depth(s) = 20'  
 Soil Sample(s): BH05 @ 13.5-14.0 Rationale Staining High PID  
1315  
 Additional Information:



**SOIL BORING LOG**

← Boring Location Sketch

Project Number 744.1902.1 446538  
 Boring Number BH06  
 Sheet 1 of 1

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO  
 Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro  
 Date 7/9/19 Water Level ~8.5 Start 1335 Finish 1355 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6"/6"/6"/6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
0-1					Pothole to 6'				
1-2		1238		N/A	2' brown silty sand, slightly moist, FE/CACO3 pockets, no stain, no odor	SM		3.1	2
2-4					4' cobbles. Punch through with geoprobe.	GC		2.1	4
4-7					4.5' Dark grey (moist from pitting) clayey sand and gravel,	SP		2.2	7
7-8					6-7' same as above	GP		2.2	8
8-11					8-11 poorly graded sands no stain, no odor, loose, saturated				
11-16					11-16 poorly graded gravels with sands - med to coarse no stain / no odor. Sands coarsens with depth.				

Total Depth(s) = 16'  
 Soil Sample(s): BH06 @ 2'  
 Rationale: High PID  
 Additional Information: 1230



**SOIL BORING LOG**

← Boring Location Sketch

Project Number 744.1902.1 446538  
 Boring Number BH07  
 Sheet 1 of 1

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 7/19/19 Water Level 28.5 Start 1315 Finish 1330 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6"/6"/6"/6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
0				N/A	Pothole to 6'				
5					2' - Clay with gravel and sand, brown to grey. No odor or stain. Gravels angular to 1", moist from potholing	GC SM		6.7C 5.1C	5
10		1325			4' silty sand, brown, slightly moist, trace gravels to 3/8", no stain or odor	SP		2.5C	10
15					6-7 same as above			2.1C	15
20					7-11 Dark/black stained poorly sorted sands - moist	GP		2.1C	20
25					At 8' no staining and saturated, loose.			2.3C	25
30					11-16' poorly graded gravel with sands - med to coarse, gravels to 3"				30
35					no stain				35

Total Depth(s) = 16'

Soil Sample(s): BH07 @ 2.5-8.0' Rationale Staining  
1325

Additional Information:



# WELL CONSTRUCTION LOG

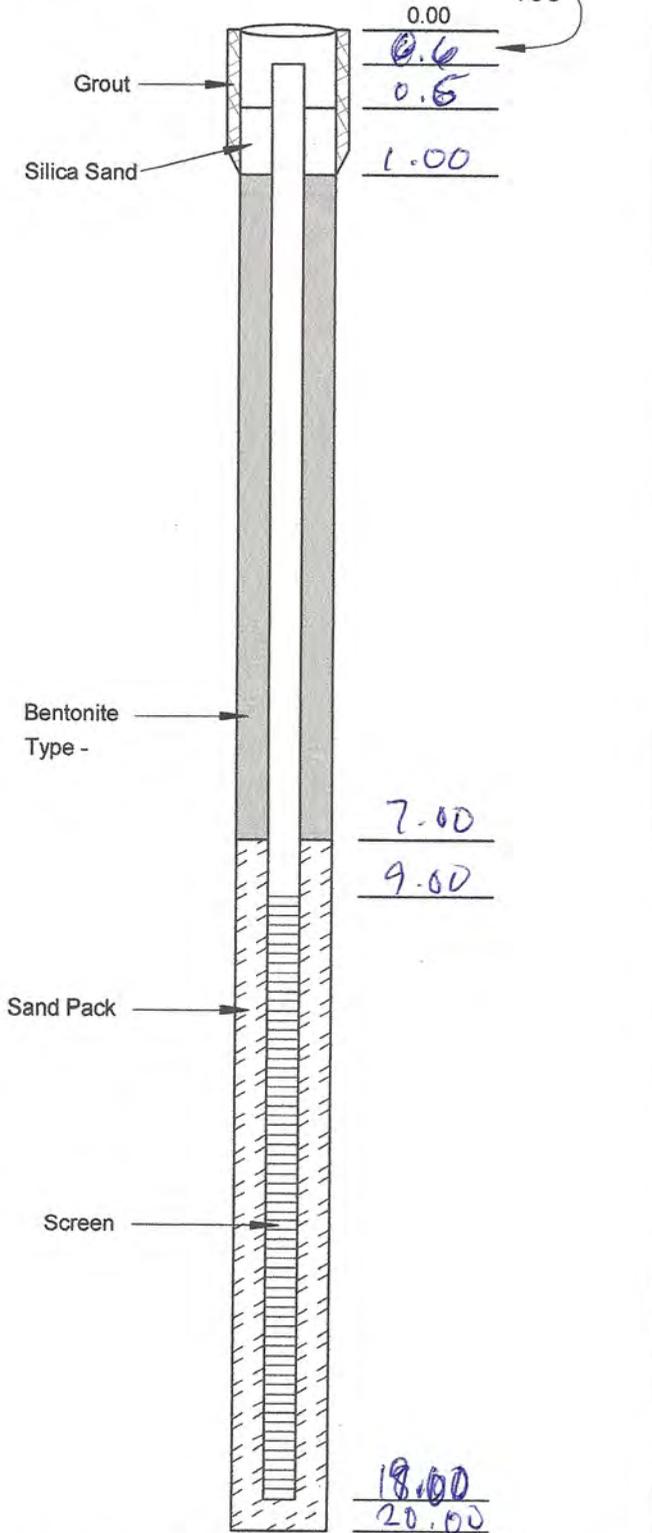
Project 744.1902.1  
Number 446538

Well Number B1105

## Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



## Drilling Summary

Total Depth of Hole: 20.0  
Hole Diameter: 2-25  
Drilling Company: Drill Pro  
Driller: Terrance  
Rig Type: Direct Push  
Bits: Solid Core  
Geologist: D. Puchrik

## Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	7/6/19	1400	7/6/19	1415
Well Completion:	7/6/19	1400	7/6/19	1425
Grouting:	7/6/19	1445	7/6/19	1500

## Depth to Water (Below TOC)

Depth: 12.10 Date: 7/9/19 Time: 1445

## Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>50</u>	<u>260</u>	<u>150</u>
Type:	<u>Quickcrete</u>	<u>bent</u>	<u>10/20</u>

	Screen	
Size:	<u>50'</u>	Config.: <u>10 Slot</u>
Area/Ft.:	<u>.04</u>	Comp.: <u>PVC</u>
Inside Diam.:	<u>1"</u>	Outside Diam.: <u>Sch 40</u>

## Comments

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\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 18.60

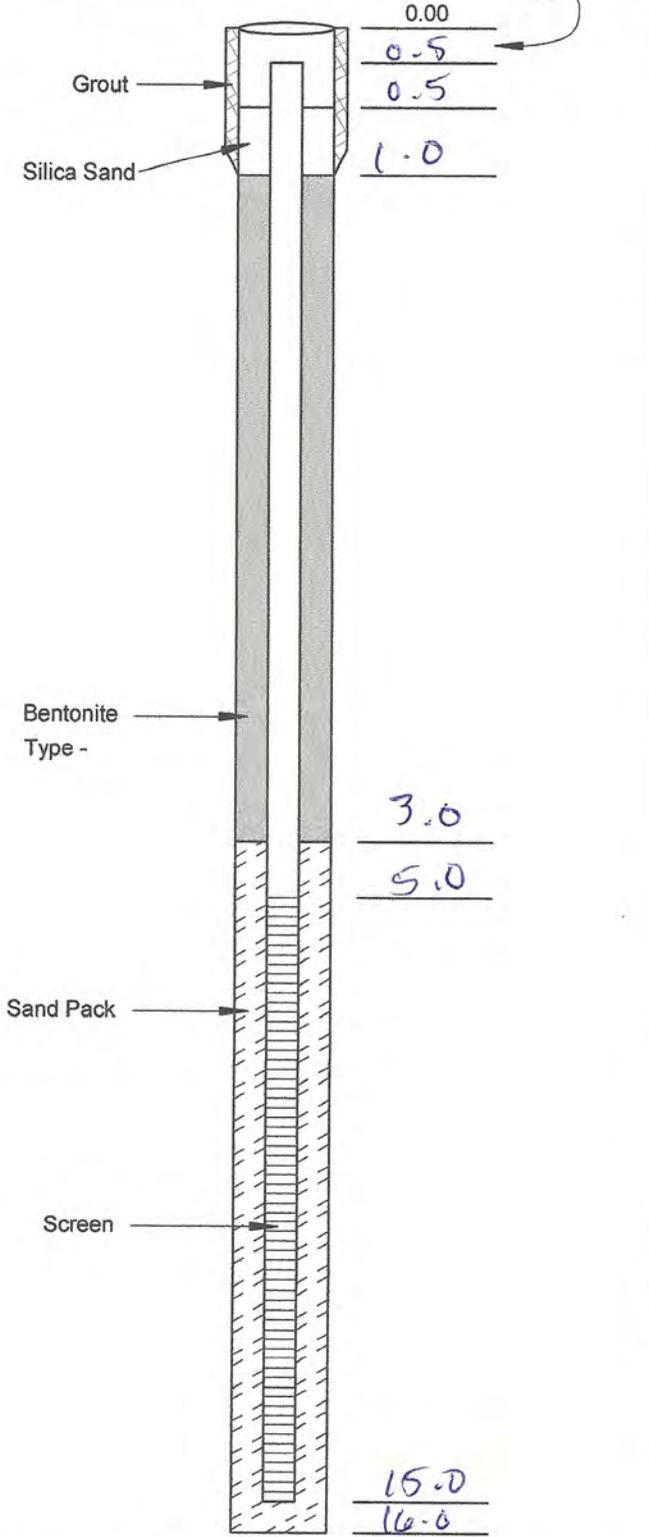


# WELL CONSTRUCTION LOG

## Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Project 744.1902.1  
Number 446538

Well  
Number BH06

## Drilling Summary

Total Depth of Hole: 16.0

Hole Diameter: 2.25

Drilling Company: Drill Pro

Driller: Terraviva

Rig Type: Direct Push

Bits: Solid Core

Geologist: D. Puchrik

## Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	7/9/19	1335	7/9/19	1355
Well Completion:	7/9/19	1345	7/9/19	1400
Grouting:	7/9/19	1430	7/9/19	1445

## Depth to Water (Below TOC)

Depth: 9.22 Date: 7/9/19 Time: 1440

## Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>50</u>	<u>60</u>	<u>75</u>
Type:	<u>Acid-cured bent</u>	<u>10/20</u>	<u>10/20</u>

	Screen	
Size:	<u>10'</u>	Config.: <u>10 Slot</u>
Area/Ft.:	<u>.04</u>	Comp.: <u>PVC</u>
Inside Diam.:	<u>1"</u>	Outside Diam.: <u>Sch 40</u>

## Comments

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Total Depth from TOC = 14.5



# WELL CONSTRUCTION LOG

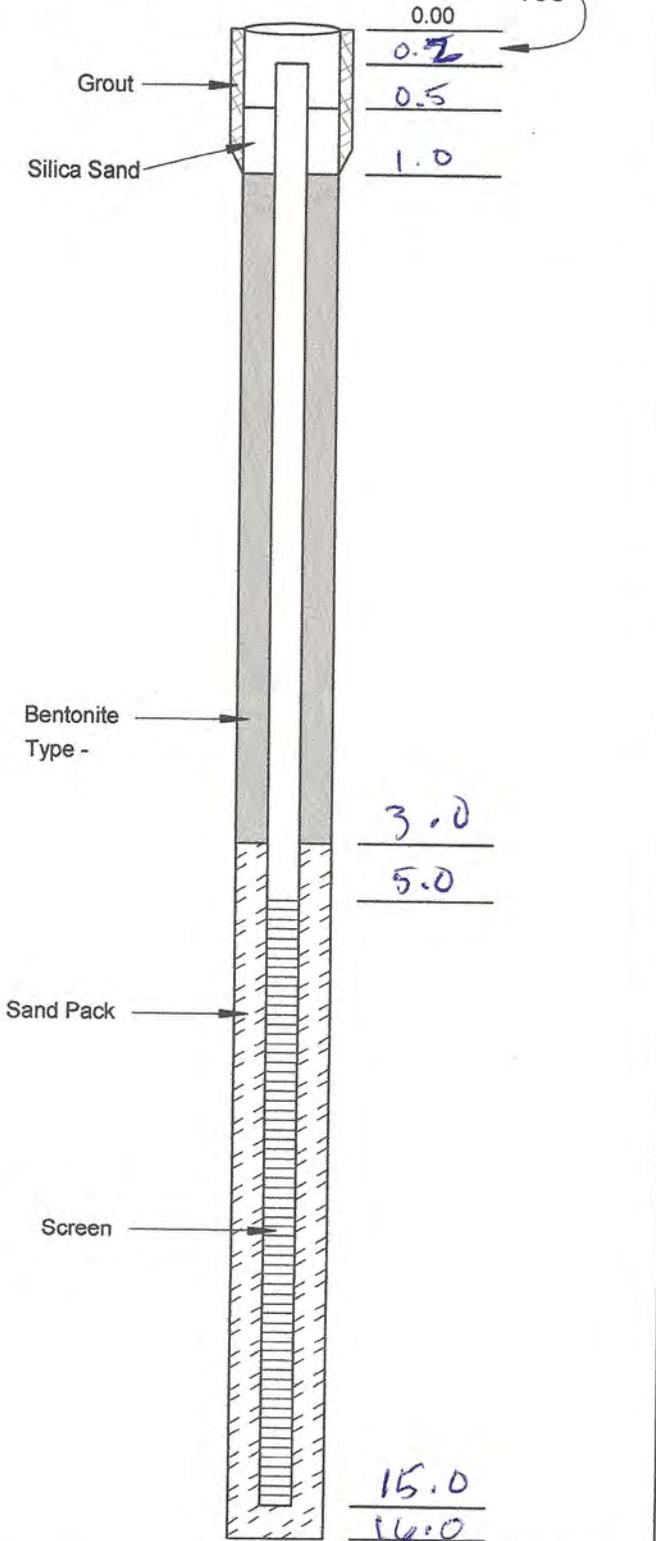
Project 744.1902.1  
Number 446538

Well Number B107

## Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 14.20

## Drilling Summary

Total Depth of Hole: 16.0  
Hole Diameter: 2.25  
Drilling Company: Drill Pro  
Driller: Terrance  
Rig Type: Direct Push  
Bits: Solid Core  
Geologist: D. Puchrik

## Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	7/6/19	1315	7/6/19	1330
Well Completion:	7/6/19	1330	7/6/19	1345
Grouting:	7/6/19	1415	7/6/19	1430

## Depth to Water (Below TOC)

Depth: ~~9.75~~ <sup>7.60</sup> Date: 7/9/19 Time: 1435

## Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>50</u>	<u>60</u>	<u>75</u>
Type:	<u>6.1000</u>	<u>best</u>	<u>10/20</u>
Screen			
Size:	<u>10</u>	Config.: <u>10 Slot</u>	
Area/Ft.:	<u>.04</u>	Comp.: <u>PVC</u>	
Inside Diam.:	<u>1"</u>	Outside Diam.: <u>Sch 40</u>	

## Comments

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