



RAILROAD COMMISSION OF TEXAS

Form W-2

1701 N. Congress
P.O. Box 12967
Austin, Texas 78701-2967

Status: Approved
Date: 01/02/2019
Tracking No.: 202535

OIL WELL POTENTIAL TEST, COMPLETION OR RECOMPLETION REPORT, AND LOG

OPERATOR INFORMATION

Operator Name: APPROACH OPERATING LLC Operator No.: 028625
Operator Address: ONE RIDGMAR CENTRE 6500 WEST FREEWAY SUITE 800 FORT WORTH, TX 76116-0000

WELL INFORMATION

API No.: 42-105-42381 County: CROCKETT
Well No.: 2119HB RRC District No.: 7C
Lease Name: UNIVERSITY 42 Field Name: HOLT RANCH (CONSOLIDATED)
RRC Lease No.: 17265 Field No.: 42341300
Location: Section: 21, Block: 42, Survey: UL, Abstract: U371
Latitude: Longitude:
This well is located 14 miles in a N direction from OZONA, which is the nearest town in the county.

FILING INFORMATION

Purpose of filing: Initial Potential
Type of completion: Other/Recompletion
Well Type: Producing Completion or Recompletion Date: 08/20/2018
Type of Permit Date Permit No.
Permit to Drill, Plug Back, or Deepen 04/13/2017 825013
Rule 37 Exception
Fluid Injection Permit
O&G Waste Disposal Permit
Other:

COMPLETION INFORMATION

Spud date: 05/07/2017 Date of first production after rig released: 08/20/2018
Date plug back, deepening, recompletion, or drilling operation commenced: 07/01/2018 Date plug back, deepening, recompletion, or drilling operation ended: 08/09/2018
Number of producing wells on this lease in this field (reservoir) including this well: 36 Distance to nearest well in lease & reservoir (ft.): 350.0
Total number of acres in lease: 7780.13 Elevation (ft.): 2596 GL
Total depth TVD (ft.): 5944 Total depth MD (ft.): 13655
Plug back depth TVD (ft.): 5943 Plug back depth MD (ft.): 13565
Was directional survey made other than inclination (Form W-12)? Yes Rotation time within surface casing (hours): 74.5
Is Cementing Affidavit (Form W-15) attached? Yes
Recompletion or reclass? Yes Multiple completion? No
Type(s) of electric or other log(s) run: None
Electric Log Other Description:
Location of well, relative to nearest lease boundaries Off Lease : No
of lease on which this well is located: 1032.0 Feet from the South Line and
1828.0 Feet from the East Line of the
UNIVERSITY 42 Lease.

FORMER FIELD (WITH RESERVOIR) & GAS ID OR OIL LEASE NO.

Table with 4 columns: Field & Reservoir, Gas ID or Oil Lease No., Well No., Prior Service Type. Row 1: PACKET, HOLT RANCH (CONSOLIDATED), 17265, 2119HB

W2: N/A

**FOR NEW DRILL OR RE-ENTRY, SURFACE CASING DEPTH DETERMINED BY:**

<b>GAU Groundwater Protection Determination</b>	<b>Depth (ft.):</b> 750.0	<b>Date:</b> 04/13/2017
<b>SWR 13 Exception</b>	<b>Depth (ft.):</b> 1240.0	

**INITIAL POTENTIAL TEST DATA FOR NEW COMPLETION OR RECOMPLETION**

<b>Date of test:</b> 09/07/2018	<b>Production method:</b> Flowing
<b>Number of hours tested:</b> 24	<b>Choke size:</b> 1.0
<b>Was swab used during this test?</b> No	<b>Oil produced prior to test:</b> 2284.00

**PRODUCTION DURING TEST PERIOD:**

<b>Oil (BBLs):</b> 287.00	<b>Gas (MCF):</b> 588
<b>Gas - Oil Ratio:</b> 2048	<b>Flowing Tubing Pressure:</b> 200.00
<b>Water (BBLs):</b> 1303	

**CALCULATED 24-HOUR RATE**

<b>Oil (BBLs):</b> 287.0	<b>Gas (MCF):</b> 588
<b>Oil Gravity - API - 60.:</b> 41.0	<b>Casing Pressure:</b> 730.00
<b>Water (BBLs):</b> 1303	

**CASING RECORD**

Row	Type of Casing	Casing Size (in.)	Hole Size (in.)	Setting Depth (ft.)	Multi - Stage Depth (ft.)	Multi - Stage Shoe Depth (ft.)	Cement Class	Cement Amount (sacks)	Slurry Volume (cu. ft.)	Top of Cement (ft.)	TOC Determined By
1	Surface	9 5/8	12 1/4	1239			CLASS C	630	1002.0	0	Circulated to Surface
2	Conventional Production	5 1/2	8 3/4	13652			CLASS H	2611	3625.0	0	Circulated to Surface

**LINER RECORD**

Row	Liner Size (in.)	Hole Size (in.)	Liner Top (ft.)	Liner Bottom (ft.)	Cement Class	Cement Amount (sacks)	Slurry Volume (cu. ft.)	Top of Cement (ft.)	TOC Determined By
N/A									

**TUBING RECORD**

Row	Size (in.)	Depth (ft.)	Size (ft.)	Packer Depth (ft.)/Type
1	2 7/8	5751		5745 / AS-1X PACKER

**PRODUCING/INJECTION/DISPOSAL INTERVAL**

Row	Open hole?	From (ft.)	To (ft.)
1	No	L1 6092	13555.0

**ACID, FRACTURE, CEMENT SQUEEZE, CAST IRON BRIDGE PLUG, RETAINER, ETC.**

**Was hydraulic fracturing treatment performed?** Yes

**Is well equipped with a downhole actuation sleeve?** No **If yes, actuation pressure (PSIG):**

**Production casing test pressure (PSIG) prior to hydraulic fracturing treatment:** 8500 **Actual maximum pressure (PSIG) during hydraulic fracturing:** 8000

**Has the hydraulic fracturing fluid disclosure been reported to FracFocus disclosure registry (SWR29)?** Yes

Row	Type of Operation	Amount and Kind of Material Used	Depth Interval (ft.)
1	Fracture	316735 BBLs FLUID; 50500 GALS 15% HCL; 8218214 LBS 100 MESH; 2139633 LBS 40/70	6092 - 13555

**FORMATION RECORD**

<u>Formations</u>	<u>Encountered</u>	<u>Depth TVD (ft.)</u>	<u>Depth MD (ft.)</u>	<u>Is formation isolated?</u>	<u>Remarks</u>
QUEEN	Yes	1058.0	1058.0	Yes	CEMENTED CASING
SAN ANDRES	Yes	1687.0	1688.0	Yes	CEMENTED CASING
LEONARD	Yes	4087.0	4090.0	Yes	CEMENTED CASING
WOLFCAMP	Yes	5426.0	5431.0	Yes	AREA OF PRODUCTION
CANYON	No			No	BELOW PRODUCTION AREA
STRAWN	No			No	BELOW PRODUCTION AREA
DEVONIAN	No			No	BELOW PRODUCTION AREA
ELLENBURGER	No			No	BELOW PRODUCTION AREA

Do the producing interval of this well produce H2S with a concentration in excess of 100 ppm (SWR 36)? No  
 Is the completion being downhole commingled (SWR 10)? No

**REMARKS**

**RRC REMARKS**

**PUBLIC COMMENTS:**

[RRC Staff 2018-12-04 10:52:15.991] EDL=7450 feet, max acres=560, HOLT RANCH (CONSOLIDATED) oil well; take points: 6092-13555 feet

**CASING RECORD :**

**TUBING RECORD:**

**PRODUCING/INJECTION/DISPOSAL INTERVAL :**

**ACID, FRACTURE, CEMENT SQUEEZE, CAST IRON BRIDGE PLUG, RETAINER, ETC. :**

**POTENTIAL TEST DATA:**

**OPERATOR'S CERTIFICATION**

**Printed Name:** Erin Childs  
**Telephone No.:** (817) 989-9000

**Title:** Sr Engineering Technician  
**Date Certified:** 11/06/2018



RAILROAD COMMISSION OF TEXAS

1701 N. Congress
P.O. Box 12987

Austin, Texas 78701-2987

Form W-15

Rev 08/2014

CEMENTING REPORT

Cementor: Fill in shade areas.
Operator: Fill in other items.

OPERATOR INFORMATION

Operator Name: Approach Operating
Operator P-5 No.: 028625
Cementor Name: Crest Pumping Technologies
Cementor P-5 No.: 18888

WELL INFORMATION

District No.: 7C
Well No.: 2119HB
County: Crockett
Lease Name: University 42
Field Name: Holt Ranch (Consolidated)
API No.: 42-105-42381
Lease No.: 17265
Drilling Permit No.: 825013
Field No.: 42391300

I. CASING CEMENTING DATA

Type of casing: Surface
Drilled hole size (in.): 12 1/4
Depth of drilled hole (ft.): 1240
Est. % wash-out or hole enlargement: 5%
Casing weight (lbs/ft) and grade: 36# J-55
No. of centralizers used: 10
Setting depth shoe (ft.): 1239'

SLURRY

Table with 6 columns: Slurry No., No. of Sacks, Class, Additives, Volume (cu. ft.), Height (ft.)

II. CASING CEMENTING DATA

Type of casing: Surface
Drilled hole size (in.):
Depth of drilled hole (ft.):
Est. % wash-out or hole enlargement:
Casing weight (lbs/ft) and grade:
No. of centralizers used:
Setting depth shoe (ft.):

SLURRY

Table with 6 columns: Slurry No., No. of Sacks, Class, Additives, Volume (cu. ft.), Height (ft.)

III. CASING CEMENTING DATA

Type of casing: Surface
Drilled hole size (in.):
Depth of drilled hole (ft.):
Est. % wash-out or hole enlargement:
Casing weight (lbs/ft) and grade:
No. of centralizers used:
Setting depth tool (ft.):

SLURRY

Table with 6 columns: Slurry No., No. of Sacks, Class, Additives, Volume (cu. ft.), Height (ft.)





# RAILROAD COMMISSION OF TEXAS

1701 N. Congress  
P.O. Box 12967  
Austin, Texas 78701-2967

Form W-15

Rev 08/2014

## CEMENTING REPORT

Cementer: Fill in shade areas.  
Operator: Fill in other items.

### OPERATOR INFORMATION

Operator Name: Approach Operating	Operator P-6 No.: 028625
Cementer Name: Great Pumping Technologies	Cementer P-8 No.: 18888

### WELL INFORMATION

District No.: 7C	County: Crockett
Well No.: 2119HB	API No.: 42-105-42381
Lease Name: University 42	Lease No.: 17265
Field Name: Holt Ranch (consolidated)	Field No.: 42-341300
Drilling Permit No.: 825013	

### I CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Conductor <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Liner <input checked="" type="checkbox"/> Production		
Drilled hole size (in.): 8 3/4	Depth of drilled hole (ft.): 13,655'	Est. % wash-out or hole enlargement: 80%
Size of casing in O.D. (in.): 5 1/2	Casing weight (lbs/ft) and grade: 7# P110	No. of centralizers used: 238
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth shoe (ft.): 13,652'	Top of liner (ft.):
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.): 0	Setting depth liner (ft.):
Cementing date: 5/18/2017		

#### SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1	738	Class H	See Remarks	1,281	5,071
2	1,875	Class H	See Remarks	2,344	9,280
3					
Total	2,611			3,625	14,351

### II CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement shoe <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.)	Tapered string depth of drilled hole (ft.)	
Upper: Lower:	Upper: Lower:	
Tapered string size of casing in O.D. (in.)	Tapered string casing weight (lbs/ft) and grade	Tapered string no. of centralizers used
Upper: Lower:	Upper: Lower:	Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth shoe (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

#### SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

### III CASING CEMENTING DATA

Type of casing: <input type="checkbox"/> Surface <input type="checkbox"/> Intermediate <input type="checkbox"/> Production <input type="checkbox"/> Tapered production <input type="checkbox"/> Multi-stage cement/DV tool <input type="checkbox"/> Multiple parallel strings		
Drilled hole size (in.):	Depth of drilled hole (ft.):	Est. % wash-out or hole enlargement:
Size of casing in O.D. (in.):	Casing weight (lbs/ft) and grade:	No. of centralizers used:
Tapered string drilled hole size (in.)	Tapered string depth of drilled hole (ft.)	
Upper: Lower:	Upper: Lower:	
Tapered string size of casing in O.D. (in.)	Tapered string casing weight (lbs/ft) and grade	Tapered string no. of centralizers used
Upper: Lower:	Upper: Lower:	Upper: Lower:
Was cement circulated to ground surface (or bottom of cellar) outside casing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Setting depth tool (ft.):	
Hrs. waiting on cement before drill-out:	Calculated top of cement (ft.):	Cementing date:

#### SLURRY

Slurry No.	No. of Sacks	Class	Additives	Volume (cu. ft.)	Height (ft.)
1					
2					
3					
Total					

CEMENTING TO SQUEEZE, PLUG BACK OR PLUG AND ABANDON							
	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Cementing Date							
Size of hole or pipe (in.)							
Depth to bottom of tubing or drill pipe (ft.)							
Cement retainer setting depth (ft.)							
CIBP setting depth (ft.)							
Amount of cement on top of CIBP (ft.)							
Sacks of cement used							
Slurry volume pumped (cu. ft.)							
Calculated top of plug (ft.)							
Measured top of plug, if tagged (ft.)							
Slurry weight (lbs/gal)							
Class/type of cement							
Perforate and squeeze (YES/NO)							
REMARKS							
1	5 bwow Sodium Chloride, 3% Bentonite Gel, 0.5% CPT-19, 0.4% CPT-503P, 0.15% CPT-20A, 0.15% CPT-51A						
2	5 bwow Sodium Chloride, 2% Bentonite Gel, 0.5% CPT-17, 0.15% CD-3, 0.2% CPT-45, 0.2% CPT-51A, 0.2% CPT-20A						
3							
4							

CEMENTER'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that the cementing of casing and/or the placing of cement plugs in this well as shown in the report was performed by me or under my supervision, and that the cementing data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers cementing data only.

Charles Overby / Cementer      Crest Pumping Technologies      Charles Overby  
Name and title of cementer's representative      Cementing Company      Signature

P.O. Box 117 Jacksboro, TX 76458      940-567-3392      5/16/2017  
Address      City      State      Zip Code      Tel. Area Code      Number      Date: mo day yr

OPERATOR'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that I have knowledge of the well data and information presented in this report, and that the data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers all well data.

Erin Childs      Business Analyst      Erin Childs  
Type and printed name of operator's representative      Title      Signature

One Kidgator Centre      77-0074, TX 76116      817-989-9700      11/8/17  
Address      City      State      Zip Code      Tel. Area Code      Number      Date

### Instructions for Form W-15, Cementing Report

NOTICE: The Form W-15 must be submitted as an attachment to a Form G-1 (Gas Well Back Pressure Test, Completion or Recompletion Report, and Log), Form W-2 (Oil Well Potential Test, Completion or Recompletion Report, and Log), Form W-3 (Plugging Record), or Form W-4 (Application for Multiple Completion), any time cement is pumped in a wellbore.

- A. **What to file:** An operator should file an original and one copy of the completed Form W-15 for each cementing company used on a well. The cementing of different casing strings on a well by one cementing company may be reported on one form. The Form W-15 should be filed with the form W-3, Plugging Record, unless the Form W-3 is signed by the cementing company representative. When reporting dry holes, operators must complete Form W-15, in addition to Form W-3, to show any casing cemented in the hole.
- B. **How to file:** An oil and gas completion report and Form W-15 may be filed online using the Commission's Online System (<https://webapps.rrc.state.tx.us/secure/login.do>) or a paper copy of the form may be mailed to the Commission in Austin (P.O. Box 12967, Austin, Texas 78711-2967).
- C. **Surface casing:** An operator must set and cement sufficient surface casing to protect all usable quality water strata, as defined by the Groundwater Advisory Unit in Austin. Sufficient cement shall be used to fill the annular space outside the casing from the shoe to the ground surface or to the bottom of the cellar. Before drilling a well, an operator must obtain a letter from the Groundwater Advisory Unit stating the protection depth. Surface casing should not be set deeper than 200 feet below the specified depth without prior approval from the Commission. To plug and abandon a well, operators must use only cementers approved by the Commission's Director of Field Operations in accordance with SWR 14 ([http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=0&p\\_d=r&p\\_rloc=&p\\_lloc=&p\\_ploc=&pg=1&plac=&ti=16&pt=1&ch=3&ri=14](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=0&p_d=r&p_rloc=&p_lloc=&p_ploc=&pg=1&plac=&ti=16&pt=1&ch=3&ri=14)). Cementing companies, service companies, or operators can qualify as approved cementers by demonstrating that they are able to mix and pump cement in compliance with Commission rules and regulations.
- D. **Estimated % wash-out:** If the estimated % wash-outs less than 20% (or 30% along the Gulf Coast), provide supporting documentation such as caliper log to show how the estimated % wash-out was obtained.
- E. **Multi-stage cement:** An operator must report the multi-stage cement shoe in the Casing Cementing Data section by selecting the type of casing and Multi-stage cement shoe. The operator must report the multi-stage cement tool in the Casing Cementing Data section by selecting the type of casing and Multi-stage cement/DV tool.
- F. **Multiple parallel strings:** An operator should file the Form W-15 as an attachment to the Form W-4, Application for Multiple Completion. An operator may be required to submit multiple Form W-15's to show all data for multiple parallel strings.
- G. **Slurry data:** If cement job exceeds three slurries, continue the list of slurries in the Slurry table in the subsequent Casing Cementing Data box.

CHRISTI CRADDICK, CHAIRMAN  
RYAN SITTON, COMMISSIONER  
WAYNE CHRISTIAN, COMMISSIONER



LORI WROTENBERY  
DIRECTOR, OIL AND GAS DIVISION

BRIAN T. FLOYD  
DISTRICT DIRECTOR

## RAILROAD COMMISSION OF TEXAS OIL AND GAS DIVISION

**OPERATOR Name:** APPROACH OPERATING LLC  
**Address1:** ONE RIDGMAR CENTRE  
**Address2:** 6500 WEST FREEWAY SUITE 800  
**City:** FORT WORTH  
**State:** TX

**RE: Lease:** UNIVERSITY 42  
**Well No:** 2119HB  
**Sec:** 21                   **Block:** 42  
**County:** CROCKETT  
**Survey Name:** UL

**SWR13EX Application Number:** 14432                   **Drilling Permit No:** 825013

### SWR 13 CASING EXCEPTION APPLICATION/ALTERNATIVE REQUEST APPROVED

The Proposed Casing and Cementing Program submitted for the **LEASE NAME:** UNIVERSITY 42 ;  
**WELL NUMBER:** 2119HB has been approved by the Railroad Commission of Texas District Office.

- a. A copy of this approved letter must be kept on location during all phases of drilling and/or plugging operations. Once approved, changes CANNOT be made to the Proposed Casing Program on the original application without additional approval from the Railroad Commission of Texas District Office.
- b. Any substantive modifications to the cement program require prior approval from the Railroad Commission of Texas District Office, and may require re-submission of the SWR 13 (Statewide Rule 13) Alternate Surface Casing Application. Contact the Railroad Commission of Texas District Office for more information.
- c. The tail slurry must be sufficient to fill the Zone of Critical Cement as described in Statewide Rule 13(b)(1)(H)(i). In addition, all cement slurries must be mixed on location as described in Application for Alternate Surface Casing Program.
- d. The casing and cement program shall adhere to the following specifications:  
Set 1250 feet of surface casing and circulate cement from the shoe to the ground surface.

IF CEMENT IS NOT CIRCULATED TO THE GROUND SURFACE AS REQUIRED BY THIS EXCEPTION, YOU MUST CONTACT THE RAILROAD COMMISSION OF TEXAS DISTRICT OFFICE IMMEDIATELY AND FOLLOW THE PROCEDURES SET OUT IN RULE 13(b)(1)(H)(iii) OR AS REQUIRED BY THE RAILROAD COMMISSION OF TEXAS DISTRICT OFFICE.

You must comply with all other provisions of SWR 13 (Statewide Rule 13) and a representative of the cementing company who performs the cementing job for the protection of usable quality water strata must sign the Form W-15 attesting to the information regarding cementing operations performed; including circulation of cement. (Note: If surface casing is set below the approved depth, this can result in denial of future Statewide Rule 13(b)(1)(H)(i) requests.) A condition of the approved drilling permit requires notification to the Railroad Commission of Texas District Office eight (8) hours prior to the time casing is to be set/cemented in the well. If your exception request was submitted after the subject well has been drilled and completed, the operator may be referred for enforcement action.

This authorization shall expire within five (5) years from the date the Groundwater Protection Determination was issued, or at the expiration of the drilling permit (if the well is not spudded prior to expiration) for the referenced well, whichever occurs first. Furthermore, this authorization supersedes any prior authorizations issued for the referenced well.

This exception is based on information provided when the application was submitted on 04/20/2017 .  
If any information has changed, you must contact the appropriate Railroad Commission of Texas District Office, and submit a new application if applicable. If you have questions, please contact the appropriate Oil and Gas District office.

RRC APPROVAL BY: Bill Spraggins

DATE: 04/21/2017

BRIAN T. FLOYD  
DISTRICT DIRECTOR

Tracking No.: 202535

*This facsimile L-1 was generated electronically from data submitted to the RRC.*

**Instructions**

**When to File Form L-1:**

- with Forms G-1, W-2, and GT-1 for new and deepened gas, oil, and geothermal wells
- with Form W-3 for plugged dry holes
- when sending in a log which was held under a request for confidentiality and the period for confidentiality has not yet expired.

**When is Form L-1 NOT required:**

- with Forms W-2, G-1, and GT-1 filed for injection wells, disposal wells, water supply wells, service wells, re-test wells, re-classifications, and plugbacks of oil, gas or geothermal wells
- with Form W-3 for plugging of other than a dry hole

**Where to File Form L-1:**

- with the appropriate Commission district office

**Filling out Form L-1:**

- Section I and the signature section must be filled out for all wells
- complete only the appropriate part of Section II

**Type of log required:**

- any wireline survey run for the purpose of obtaining lithology, porosity, or resistivity information
- no more than one such log is required but it must be of the subject well
- if such log is NOT run on the subject well, do NOT substitute any other type of log; just select Section II, Part A below

**SECTION I. IDENTIFICATION**

Operator Name: APPROACH OPERATING LLC	District No. 7C	Completion Date: 08/20/2018
Field Name HOLT RANCH (CONSOLIDATED)	Drilling Permit No. 825013	
Lease Name UNIVERSITY 42	Lease/ID No. 17265	Well No. 2119HB
County CROCKETT	API No. 42- 105-42381	

**SECTION II. LOG STATUS (Complete either A or B)**

A. BASIC ELECTRIC LOG NOT RUN

B. BASIC ELECTRIC LOG RUN. (Select one)

- 1. Confidentiality is requested and a copy of the header for each log that has been run on the well is attached.
- 2. Confidentiality already granted on basic electric log covering this interval (applicable to deepened wells only).
- 3. Basic electric log covering this interval already on file with Commission (applicable to deepened wells only).
- 4. Log attached to (select one):
  - (a) Form L-1 (this form). If the company/lease name on log is different from that shown in Section I, please enter name on log here: \_\_\_\_\_  
 Check here if attached log is being submitted after being held confidential.
  - (b) Form P-7, Application for Discovery Allowable and New Field Designation.
  - (c) Form W-4, Application for Multiple Completion:  
 Lease or ID No(s). \_\_\_\_\_  
 Well No(s). \_\_\_\_\_

Erin Childs  
 \_\_\_\_\_  
 Signature  
 \_\_\_\_\_  
 Name (print)

Sr Engineering Technician  
 \_\_\_\_\_  
 Title  
 (817) 989-9000  
 \_\_\_\_\_  
 Phone  
 01/02/2019  
 \_\_\_\_\_  
 Date

-FOR RAILROAD COMMISSION USE ONLY-



Oper. Company: Approach Resources, LLC

State: Texas

Well: University 42 2119HB

County: Crockett

Field: Holt Ranch (Consolidated)

Country: USA

Rig: Nomac #133

Location: X 1743975 / Y 454230

Well ID: 42-105-42381

Start Date: 05/09/2017 20:00:00

Job Number: 4189

End Date: 05/15/2017 09:30:00

Latitude: 30° 54' 46.993 N

Elev GL: 2596'

Longitude: 101° 8' 59.208 W

Elev DF: 2618.5'

Elev KB: 2618.5'

Operator 1: Joe Sammarco

Operator 2: Jim Taylor

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	590	590	590		
Bit Size	8 3/4"	8 3/4"	8 3/4"		
Cal Factor	4.0	4.0	4.0		
Survey Offset	62.00	51.00	52.00		
Gamma Offset	53.00	42.00	43.00		
Resistivity Offset	0.00	0.00	0.00		
Start Depth	1354.00	5201.00	12805.00		
StartDate	5/9/2017	5/14/2017	5/14/2017		
StartTime	08:00	10:30	16:00		
EndDepth	5200.00	12804.00	13655.00		
EndDate	5/11/2017	5/14/2017	5/15/2017		
EndTime	01:30	13:30	09:30		
Mud Type	Oilbase	Oilbase	Oilbase		
Mud Weight	9.05	9.1	9.2		
Funnel Viscosity	64	61	77		
Plastic Viscosity	22	24	20		
Yield Point	14	16	13		
Gel Strength	14 / 23	16 / 24	13 / 21		
Solids Content	9.2	9.8	10.1		
Sand Content	0	0	0		
Mud Alkalinity	3.4	3.5	3.6		
Filtrate Alkalinity	12	14	12		
Chlorides	52000	53000	53000		
Temperature	151	203	189		

Hole Data

Casing Data

Size	From	To	Size	From	To
12 1/4"	0.00	1240.00	9 625	0.00	1240.00
8 3/4"	1241.00	13655.00			

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation and we shall not be held liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees

0.00	GR(API)	150.00	MD	0.00	ROP(FT/HR)	200.00
150.00	2	300.00	FT	200.00	2	400.00
				400.00	3	600.00
				600.00	4	800.00



# RAILROAD COMMISSION OF TEXAS

1701 N. Congress  
P.O. Box 12967  
Austin, Texas 78701-2967

P-16 Data Sheet

Page 1

Rev. 01/2016

## Acreage Designation

SECTION I. OPERATOR INFORMATION	
Operator Name: Approach Operating, LLC	Operator P-5 No.: 028625
Operator Addr: One Ridgmar Centre, 6500 West Freeway, Suite 800, Fort worth, TX 76116	

SECTION II. WELL INFORMATION		
District No.: 7C	County: Crockett	Purpose of Filing: <input type="checkbox"/> Drilling Permit Application (Form W-1) <input checked="" type="checkbox"/> Completion Report
Well No.: 2119HB	API No.: 42-105-42381	
Total Lease Acreage: 7780.13	Drilling Permit No.: 825013	
Lease Name: University 42	Lease No.: 17265	
Field Name: Holt Ranch (Consolidated)	Field No.: 42341300	

Filer is the owner or lessee, or has been authorized by the owner or lessee, of all or an undivided portion of the mineral estate under each tract for which filer is listed as operator below. For all leases operated by other entities, the number of assigned acres shown are reflected on current Commission records or the filer has been authorized by the current operator to change the assigned acreage of that operator as shown below.

SECTION III. LISTING OF ALL WELLS IN THE APPLIED-FOR FIELD ON THE SAME ACREAGE AS THE LEASE, POOLED UNIT, OR UNITIZED TRACT DESIGNATED IN SECTION II ABOVE BY FILER							
RRC ID No. or Lease No.	Well No.	H-Horizontal D-Directional V-Vertical	Lease Name	API No.	Acres Assigned	SWR 38 Except. (Y/N)	Operator Name and Operator No. (if different from filing operator)
17265	2119HB	H	University 42	105-42381	85.00		
247150	1101X	V	University 42	105-41206	79.86		
17265	1102R	V	University 42	105-41206	79.86		
17265	1103	V	University 42	105-41324	79.86		
256802	1201	V	University 42	105-40677	79.86		
247118	1202	V	University 42	105-40791	79.86		
249468	1203	V	University 42	105-40966	79.86		
256781	1204	V	University 42	105-41068	79.86		
263325	1205	V	University 42	105-41284	79.86		
243913	1301	V	University 42	105-40683	79.86		
246751	1303	V	University 42	105-40786	79.86		
247116	1304	V	University 42	105-40787	79.86		
17265	1305	V	University 42	105-40793	79.86		
17265	1306	V	University 42	105-40912	79.86		
247121	1307	V	University 42	105-40934	79.86		
17265	1308	V	University 42	105-40997	79.86		
17265	1309	V	University 42	105-41197	79.86		
Total Well Count>	96	1870	< A. Total Assigned Horiz. Acreage		7780.13	< C. Total Assigned Acreage	
		0	< Total Remaining Horiz. Acreage		0	< Total Remaining Acreage	
		5910.13	< B. Total Assigned Vert./Dir. Acreage				
		0	< Total Remaining Vert./Dir. Acreage				

SECTION IV. REMARKS / PURPOSE OF FILING (see instructions)

Attach Additional Pages As Needed.  No additional pages  Additional Pages: 2 (No. of additional pages)

CERTIFICATION: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that this report was prepared by me or under my supervision or direction, that I am authorized to make this report, and that the information contained in this report is true, correct, and complete to the best of my knowledge.

*Erin Childs*  
Signature

Erin Childs, Business Analyst  
Name and title (type or print)

[echilds@approachresources.com](mailto:echilds@approachresources.com)  
Email (include email address only if you affirmatively consent to its public release)

6500 West Freeway, Suite 800, Fort Worth, TX 76116  
Address City, State, Zip Code

817-989-9000  
Tel: Area Code Number

11/29/2018  
Date: mo. day yr.



# RAILROAD COMMISSION OF TEXAS

1701 N. Congress  
P.O.Box 12967  
Austin, Texas 78701-2967

Form P-16

Attachment

Page 1A

Rev. 01/2016

## Acreage Designation Attachment

Filer is the owner or lessee, or has been authorized by the owner or lessee, of all or an undivided portion of the mineral estate under each tract for which filer is listed as operator below. For all leases operated by other entities, the number of assigned acres shown are reflected on current Commission records or the filer has been authorized by the current operator to change the assigned acreage of that operator as shown below.

**SECTION III (CONTINUED). LISTING OF ALL WELLS IN THE APPLIED-FOR FIELD ON THE SAME ACREAGE AS THE LEASE, POOLED UNIT, OR UNITIZED TRACT DESIGNATED IN SECTION II ABOVE BY FILER**

RRC ID No. or Lease No.	Well No.	H -Horizontal D-Directional V-Vertical	Lease Name	API No.	Acres Assigned	SWR 38 Except. (Y/N)	Operator Name and Operator No. (if different from filing operator)
256801	1310	V	University 42	105-41067	79.86		
17265	1311	V	University 42	105-41145	79.86		
17265	1312	V	University 42	105-41155	79.86		
17265	1313	V	University 42	105-41198	79.86		
17265	1314	V	University 42	105-41236	79.86		
280962	1315	V	University 42	105-41237	79.86		
280961	1317	V	University 42	105-41238	79.86		
17265	1318	V	University 42	105-41239	79.86		
239761	1401	V	University 42	105-40502	79.86		
240948	1402	V	University 42	105-40527	79.87		
242419	1403	V	University 42	105-40599	79.87		
243914	1404	V	University 42	105-40657	79.87		
246756	1405	V	University 42	105-40659	79.87		
280960	1407	V	University 42	105-41091	79.87		
258236	1408	V	University 42	105-41088	79.87		
280963	1409	V	University 42	105-41147	79.87		
17265	1410	V	University 42	105-41199	79.87		
17265	1411	V	University 42	105-41200	79.87		
280964	1414	V	University 42	105-41360	79.87		
280943	1501	V	University 42	105-40528	79.87		
17265	1502	V	University 42	105-40775	79.87		
17265	1503	V	University 42	105-41131	79.87		
260171	1504	V	University 42	105-41171	79.87		
17265	1505	V	University 42	105-41173	79.87		
17265	1506	V	University 42	105-41205	79.87		
237560	2201	V	University 42	105-40467	79.87		
239764	2202	V	University 42	105-40492	79.87		
241402	2203	V	University 42	105-40532	79.87		
247117	2204	V	University 42	105-40887	79.87		
17265	2205	V	University 42	105-40998	79.87		
256243	2206	V	University 42	105-41044	79.87		
256804	2207	V	University 42	105-41069	79.87		
256803	2208	V	University 42	105-41070	79.87		
258301	2209	V	University 42	105-41071	79.87		
258296	2210	V	University 42	105-41072	79.87		
17265	2211	V	University 42	105-41134	79.87		
258244	2212	V	University 42	105-41133	79.87		
259162	2213	V	University 42	105-41135	79.87		
17265	2214	V	University 42	105-41130	79.87		
17265	2215	V	University 42	105-41152	79.87		
17265	2217	V	University 42	105-41246	79.87		
240944	2301	V	University 42	105-40529	79.87		
244872	2302	V	University 42	105-40684	79.87		
248169	2303	V	University 42	105-40795	79.87		

Total Well Count >	96	1870	< A. Total Assigned Horiz. Acreage	7780.13	< C. Total Assigned Acreage
		0	< Total Remaining Horiz. Acreage	0	< Total Remaining Acreage
		5910.13	< B. Total Assigned Vert./Dir. Acreage		
		0	< Total Remaining Vert./Dir. Acreage		



## GROUNDWATER PROTECTION DETERMINATION

Form GW-2



## Groundwater Advisory Unit

<b>Date Issued:</b>	13 April 2017	<b>GAU Number:</b>	170390
<b>Attention:</b>	APPROACH OPERATING LLC ONE RIDGMAR CENTRE FORT WORTH, TX 76116	<b>API Number:</b>	10542382
<b>Operator No.:</b>	028625	<b>County:</b>	CROCKETT
		<b>Lease Name:</b>	UNIVERSITY 42
		<b>Lease Number:</b>	
		<b>Well Number:</b>	2121HC
		<b>Total Vertical Depth:</b>	7800
		<b>Latitude:</b>	30.913054
		<b>Longitude:</b>	-101.149684
		<b>Datum:</b>	NAD27

**Purpose:** New Drill  
**Location:** Survey-UL; Block-42; Section-21

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

The interval from the land surface to 20 feet below the base of the Cretaceous-age beds must be protected. The base of the Cretaceous is estimated to occur at a depth of 750 feet.

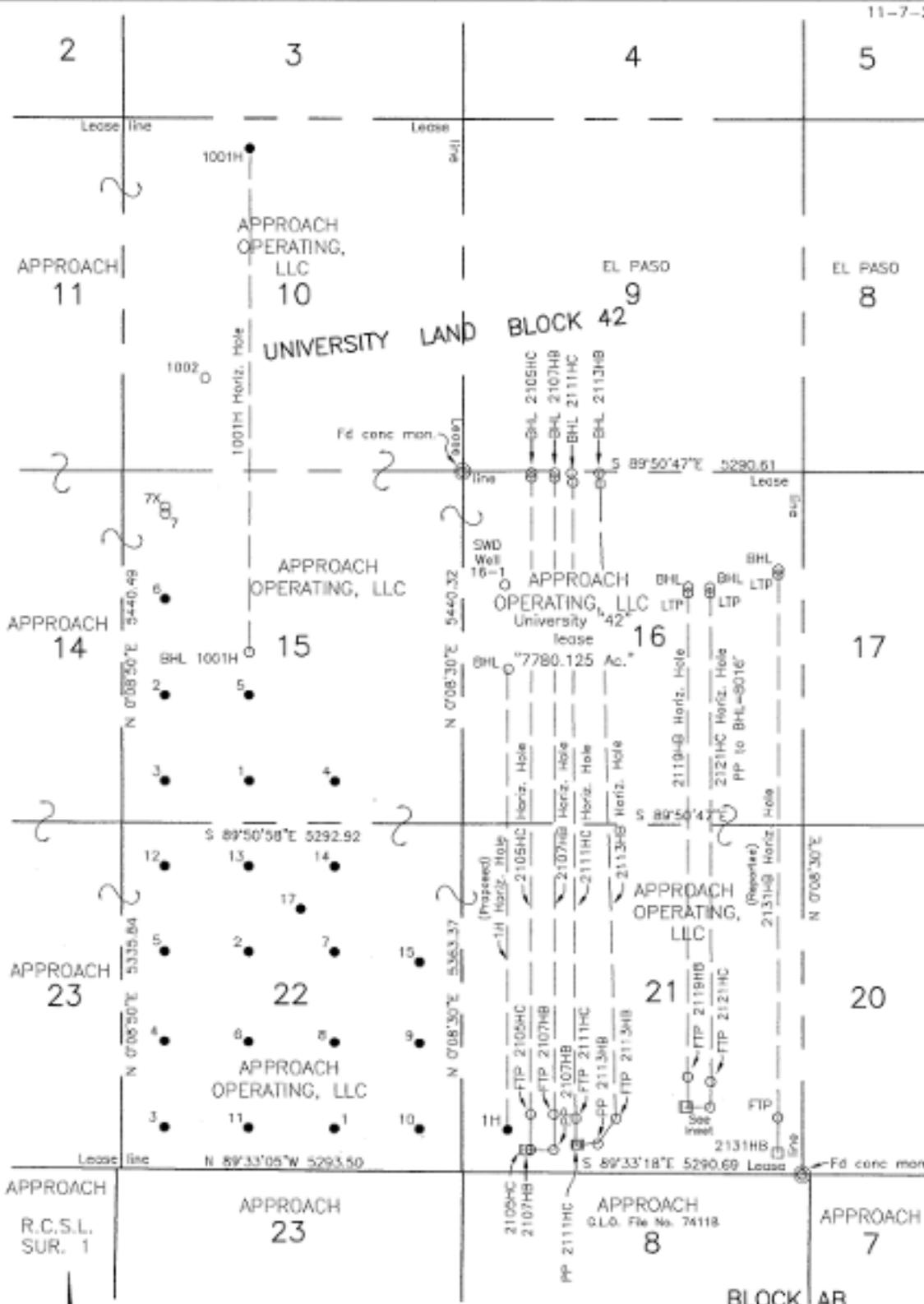
This recommendation is applicable to all wells within a radius of 2500 feet of this location.

Note: Unless stated otherwise, this recommendation is intended to apply only to the subject well and not for area-wide use. This recommendation is for normal drilling, production, and plugging operations only. It does not apply to saltwater disposal operation into a nonproductive zone (RRC Form W-14).

This determination is based on information provided when the application was submitted on 04/12/2017. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

Form GW-2 P.O. Box 12967 Austin, Texas 78771-2967 512-463-2741 Internet address: www.rrc.texas.gov  
Rev. 02/2014



**LEGEND**  
 □ = Surface Location (S.L.)  
 PP = Penetration Point  
 ● = Surface well (as drilled)  
 FTP = 1st Take Point  
 LTP = Last Take Point  
 BHL = Bottom Hole Location

**SURFACE LOCATION**  
 Y = 454,230 ft.  
 X = 1,743,975 ft.  
 Latitude : 30.9131° N.  
 Longitude : 101.1498° W.  
 1032 ft. FSL and 1828 ft. FEL  
 University Land Survey 21, Block 42  
 1032 ft. FSL and 1828 ft. FEL of lease

**REPORTED PENETRATION POINT**  
 MD = 5432'  
 58 ft. from Surf. 2119HB  
 Y = 454,237 ft.  
 X = 1,744,033 ft.  
 Latitude : 30.9131° N.  
 Longitude : 101.1498° W.  
 1040 ft. FSL and 1770 ft. FEL  
 University Land Survey 21, Block 42  
 1040 ft. FSL and 1770 ft. FEL of lease

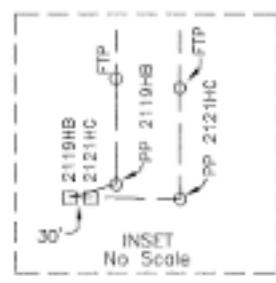
**REPORTED 1st TAKE POINT**  
 MD = 6092'  
 456 ft. from PP 2119HB  
 Y = 454,693 ft.  
 X = 1,744,027 ft.  
 Latitude : 30.9143° N.  
 Longitude : 101.1496° W.  
 1496 ft. FSL and 1777 ft. FEL  
 University Land Survey 21, Block 42  
 1496 ft. FSL and 1777 ft. FEL of lease

**REPORTED LAST TAKE POINT**  
 MD = 13,555'  
 100 ft. from BHL 2119HB  
 Y = 462,147 ft.  
 X = 1,744,037 ft.  
 Latitude : 30.9348° N.  
 Longitude : 101.1498° W.  
 1872 ft. FSL and 1788 ft. FEL  
 University Land Survey 16, Block 42  
 1872 ft. FSL and 1788 ft. FEL of lease

**REPORTED BOTTOMHOLE LOC.**  
 MD = 13,655'  
 Y = 462,247 ft.  
 X = 1,744,040 ft.  
 Latitude : 30.9351° N.  
 Longitude : 101.1498° W.  
 1772 ft. FSL and 1783 ft. FEL  
 University Land Survey 16, Block 42  
 1772 ft. FSL and 1783 ft. FEL of lease

Perpendicular distances off 2119HB Univ. 42 horizontal hole  
 FTP 2121HC (reported) = 350'  
 LTP 2121HC (reported) = 347'

Located: N 10°E 14 miles from Ozona, Texas.  
 "Ac." = Acreage claimed by operator to be in lease.  
 0 2000 4000  
**SCALE: 1" = 2000'**  
 FIELD :  
 COUNTY : Crockett  
 OPERATOR : Approach Operating, LLC  
 LEASE : University "42"  
 WELL NO. : 2119HB  
 ELEVATION : 2596 ft. grd.  
 LOCATION : 1032 ft. FSL and 1828 ft. FEL of University Land Survey 21, Block 42, Crockett County, Texas.



**NOTES**  
 Courses, distances and coordinates shown hereon are of the Texas Coordinate System of 1927 - Central Zone.  
 The survey construction shown hereon is sufficient for staking this location and no other purpose.  
 The lease information shown hereon is based on information provided by operator or its representatives and was relied upon by surveyor for the purpose of staking this location. Said surveyor was not requested to verify lease and accepts no responsibility for the accuracy or status of this information.

Reported positions and take point information as shown are based on survey report provided by operator.  
 The above sketch represents the location as staked on the ground and is for permit purposes only.

Staked the 2nd day of February, 2017.



*Thomas J. Houston*  
 Thomas J. Houston  
 Registered Professional Land Surveyor No. 4261  
**CONCHO VALLEY LAND SURVEYING, LLC**  
 2921 BLUEBONNET RD.  
 SAN ANGELO, TEXAS 76904  
 FIRM NO. 10194455  
 325-949-9475 or 325-227-0642  
 conchovalleyland@gmail.com